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# Construction Document Submittal Division 14 Swain County Storage Shed

NC Department of Transportation, Swain County November 1, 2018

Building Code Summary 2012 NC State Building Code - 2009 IBC with NC Amendments

Name of Project: Address:	Storage Shed for Division 14 345 Toot Hollow Road Road, Bryson City, NC 28713
Proposed Use: Owner/Authorized Age Owned By: Code Enforcement Ju	State of North Carolina ☐ City/County ☐ Private ■ State Email: sbaker@ncdot.g
LEAD DESIGN PROF	ESSIONAL: Archtectural Design Studio, Mike Cox
DESIGNER Architectural: Civil:   Electrical:   Fire Alarm:	FIRM/NAME  ADS, Mike Cox, FAIA  MCKim & Creed, Douglas K. Draffen, PE  MCKim & Creed, Thomas Bufford, PE
Mechanical: Sprinkler/Standpipe:	SKA, Inc., Paul Fama, PE F-0508 & 037393 (828)274-4440 dpf@suttonkennerly.com
	DDE FOR: New Construction Addition Upfit construction Alteration ORIGINAL USE (s): (Ch.3): CURRENT USE(s) (Ch. 3): PROPOSED USE(s) (Ch. 3): S-1 Storage
Sprinklers:  Standpipes:  Fire District:	☐ 1-A       ☐ II-A       ☐ IV       ☐ V-A         ☐ 1-B       ☐ III-B       ☐ V-B         Construction:       ☐ No       ☐ Yes       Types:         No       ☐ Partial       ☐ Yes       ☐ NFPA 13       ☐ NFPA 13R       ☐ NFPA 13D         No       ☐ Yes       ☐ Class       ☐ I       ☐ III       ☐ III       ☐ Ury         No       ☐ Yes       Flood Hazard Area:       ☐ No       ■ Yes         Feet       24'       Number of Stories       1
Gross Building Area: FLOOR TOTAL	EXISTING (SQ. FT.) NEW (SQ. FT.) SUB-TOTAL (SQ. FT.) 0 SF 3,503 SF 3,503 SF
Occupancy:	ALLOWABLE AREA
	Assembly A-1 A-2 A-3 A-4 A-5 Business  Educational Factory F-1 Moderate F-2 Low Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM Institutional I-1 I-2 I-3 I-4 I-3 Use Condition 1 2 3 4 5 Mercantile Residential R-1 R-2 R-3 R-4 Storage S-1 Moderate S-2 Low High Piled Parking Garage Open Closed Repair Garage Utility & Miscellaneous
Accessory Occupand	
	Assembly A-1 A-2 A-3 A-4 A-5  Business  Educational Factory F-1 Moderate F-2 Low  Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM  Institutional I-1 I-2 I-3 I-4  I-3 Use Condition 1 2 3 4 5  Mercantile Residential R-1 R-2 R-3 R-4  Storage S-1 Moderate S-2 Low High Piled  Parking Garage Open Closed Repair Garage  Utility & Miscellaneous
Incidental Uses (Tabl	
	□ Furnace room where any piece of equipment is over 400,000 Btu per hour input □ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower □ Refrigerant machine room □ Hydrogen cutoff rooms, not classified as Group H □ Incinerator Rooms □ Paint shops, not classified as Group H, located in occupancies other than Group F □ Laboratories and vocational shops, not classified as Group H. located in a Group E or I-2 Occupancy □ Laundry rooms over 100 square feet □ Group I-3 cells equipped with padded surfaces
	<ul> <li>□ Group I-2 waste and linen collection rooms</li> <li>□ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons</li> <li>□ Rooms containing fire pumps</li> <li>□ Group I-2 storage rooms over 100 square feet</li> <li>□ Group I-2 commercial kitchens</li> <li>□ Group I-2 laundries equial to or less than 100 square feet</li> </ul>
	Group I-2 rooms or spaces that contain fuel-fired heating equipment    402
Special Provisions:	□ 509.2 □ 509.3 □ 509.4 □ 509.5 □ 509.6 □ 509.7 □ 509.8 □ 509.9
Mixed Occupancy:	■ No ☐ Yes Separation: Hr. Exception: ☐ Incidental Use Separation (508.2.5)
	This separation is not exempt as Non-Separated Use (See Exceptions)  Non-Separated Use (508.3)  The required type of construction for the building shall be determined by applying the height and area
	limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
	☐ Separated Use (508.4) - See below for area calculations

Actual Area of Occupancy A + Actual Area of Occupancy B

Allowable Area of Occupancy A

Allowable Area of Occupancy B

			ALLOWAE	SLE AREA			
Story No.	Description And Use	(A) Bldg. Area Per Story (Actual)	(B) Table 503 <sup>5</sup> Area	(C) Area For Frontage Increase <sup>1</sup>	(D) Area For Sprinkler Increase <sup>2</sup>	(E) Allowable Area Or Unlimited <sup>3</sup>	(F) Maximum Building Area <sup>4</sup>
First Floor	Storage	3,503 SF	17,500 SF	N/A	N/A	17,500 SF	17,500 SF
Total							

Frontage area increases from Section 506.2 are computed thus: N/A

a. Perimeter which fronts a public way or open space having 20 feet minimum width = (F) b. Total Building Perimeter = c. Ratio (F/P) =

d. W = Minimum width of public way = e. Percent of frontage increase  $I_f = 100 \text{ [F/P - 0.25]} \text{ x W/30} = (\%)$ <sup>2</sup> The sprinkler increase per Section 506.3 is as follows: N/A

a. Multi-story building I<sub>s</sub> = 200 percent b. Single story building I<sub>s</sub>= 300 percent Unlimited area applicable under conditions of Section (507).

<sup>4</sup> Maximum Building Area = total number of stories in the building x E (506.4). <sup>5</sup> The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control

towers must comply with 412.1.2.

#### **ALLOWABLE HEIGHT**

	Allowable ( Table 503 )	Increase for Sprinklers	Shown on Plans	Code Reference
Type of Construction	Type II-B		Type II-B	T503
Building Height in Feet	Feet 55'	N/A	Feet 24'	T503
Building Height in Stories	Stories 2	Stories + 1 = N/A	Stories 1	T503

#### FIRE PROTECTION REQUIREMENTS

Building Element	Fire	ı	Rating	Detail#	Design #	Design #	Design #
	Separation	Req'd.	Provided	and	for Rated	for Rated	for Rated
	Distance		(W/*	Sheet #	Assembly	Penetration	Joints
	(Feet)		Reduction)				
Structural Frame,							
including columns, girders,		_					
trusses		0	0				
Bearing Walls							
Exterior							
North	> 30'	0	0	a)			
East	> 30'	0	0	a)			
West	> 30'	0	0	a)			
South	> 30'	0	0	a)			
Interior							
Nonbearing Walls and							
Partitions							
Exterior walls							
North		N/A					
East		N/A					
West		N/A					
South		N/A					
Interior Walls & Partitions		0	0				
Floor Construction							
including supporting		N/A					
beams and joists							
Roof Construction		0					
including supporting		0	0				
beams and joists							
Shaft Enclosures - Exit		N/A.					
Shaft Enclosures - Other		N/A					
Corridor Separation							
		N/A					
		<b>N</b> 1/2					
Occupancy Separation		N/A					
Party/Fire Wall Separation		N/A					
Smoke Barrier Separation		N/A					
Tenant/Dwelling Unit Separation		N/A					
Incidental Use Separation		N/A					

LIFE SAFETY SYSTEMS REQUIREMENTS							
Emergency Lighting:	☐ No	Yes					
Exit Signs:	■ No	☐ Yes	1011.1, Exception 1: Not required in areas requiring one exit.				
Fire Alarm:	■ No	☐ Yes					
Smoke Detection Systems:	■ No	☐ Yes	☐ Partial				

### LIFE SAFETY PLAN REQUIREMENTS

### Life Safety Plan Sheet #: 3/A-1

☐ Fire and/or smoke rated wall locations (Chapter 7)

Assumed and real property line locations ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)

☐ Existing structures within 30' of the proposed building

Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)

 Occupant loads for each area Exit Access travel distances (1016)

☐ Common path of travel distances (1014.3 & 1028.8)

☐ Dead end lengths (1018.4) Clear exit widths for each exit door

Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)

Actual Occupant load for each exit door A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation

Location of doors with panic hardware (1008.1.10) Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)

☐ Location of doors with electromagnetic egress locks (1008.1.9.8) ☐ Location of doors equipped with hold-open devices

☐ Location of emergency escape windows (1029)

☐ The square footage of each fire area (902) ☐ The square footage of each smoke compartment (407.4)

Note any code exceptions or table notes that may have been utilized regarding the items above

SCO # 141126401A

Site Details

# Index to Drawings

**INDEX/LIFE SAFETY** STRUCTURAL - CONT. T-1 Title Sheet/Building Code Data S4.1 Misc. Details Site Plan

P1.0 Plumbing Waste, Vent & Water Plan Dimensioned Site Plan

Floor Plan, Ceiling Plan, Life Safety Plan M1.0 HVAC Plan Exterior Elevations & Building Sections

**Wall Sections** Door Schedule & Details. Translucent Panels

E1.0 Electrical Lighting Plan

**STRUCTURAL** Structural Notes Foundation Plan S1.2 Roof Framing Plan Foundation Details

PLUMBING MECHANICAL ELECTRICAL P0.1 Plumbing Fixture Schedule, Legend & Notes

M0.1 HVAC Legend & Notes

E0.1 Electrical Legend & Notes Luminaire Schedule & Details

Electrical Riser Diagram & Details

Electrical Power Plan

**EXIT REQUIREMENTS** NUMBER AND ARRANGEMENT OF EXITS - SEE LIFE SAFETY PLAN 3/A-1

NUI	NDER AND	AKKANG	EMENT OF EXITS	- SEE LIFE SAFE	11 PLAN, 3/A-1	
Floor, Room or Space Designation	Minin Number	num <sup>2</sup> of Exits	Travel Di	stance	Arrangement Egress <sup>1,3</sup> (Sect	
	Required	Shown on Plans	Allowable Travel Distance (Table 1016.1)	Actual Travel Distance Shown on Plans	Req'd Distance Between Exit Doors	Actual Distance Shown on Plans
Maintenance Storage	1	2	200'	53' MAX.	N/A	
Storage	1	1	200'	76' MAX.	N/A	

Corridor dead ends (Section 1017.3) <sup>2</sup> Buildings with single exits (Table 1019.2), Spaces with one means of egress (Table 1015.1)

<sup>3</sup> Common Path of Travel (Section 1014.3)

#### **EXIT WIDTH - SEE LIFE SAFETY PLAN, 3/A-1**

Use Group	(a)	(b)			(c)		Exit Widt	h (in) <sup>2,3,</sup>	4,5,6
or Space Description	Area <sup>1</sup> sq. ft.	Area <sup>1</sup> Per Occupant (Table 1004.1.1)	Calculated Occupant Load	Egress Per Oc (Table		(Section	ed Width n 1005.1) b) x c		al Width own ans
			(a÷b)	Stair	Level	Stair	Level	Stair	Level
Maintenance Storage	2159 SF	300 gross	8	N/A	0.2	N/A	1.6"		64"
Storage	994 SF	300 gross	4	N/A	0.2	N/A	0.8"		32"
TOTAL			12 Occupants		0.2		2.4"		96"

<sup>1</sup> See Table 1004.1.1 to determine whether net or gross area is applicable.

See definition "Area, Gross" and "Area, Net" (Section 1002) <sup>2</sup> Minimum stairway width (Section 1009.1); min. corridor width (Section 1017.2); min. door width (Section 1008.1)

<sup>3</sup> Minimum width of exit passageway (Section 1023.2) <sup>4</sup> See Section 1004.5 for converging exits.

5 The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.1) <sup>6</sup> Assembly occupancies (Section 1025)

ACCESSIBLE DADKING: N/A EVISTING

	ACCESSIBLE PARKING: N/A EXISTING									
	Lot or Parking Area	Total # of Parl	king Spaces	# of Accessible S	Total # Accessible					
		Required	Provided	Regular With 5' Access Aisle	Van Spaces with 8' Access Aisle	Provided				
	Parking Lot									

**DESIGN LOADS:** STRUCTURAL DESIGN Importance Factors:

Live Loads: Mezzanine N/A psf Ground Snow Load:

Wind Load: Basic Wind Speed 90 mph (ASCE-7) Exposure Category Wind Base Shears (for MWFRS)  $V_v = 5 \text{ kips } V_v = 12 \text{ kips}$ SEISMIC DESIGN CATEGORY  $\Box$  A  $\Box$  B  $\blacksquare$  C  $\Box$  D Provide the following Seismic Design Parameters:

\_\_I **\_\_**II \_\_III Occupancy Category (Table 1604.5) Spectral Response Acceleration S<sub>S</sub> 0.374 %g Site Classification \_\_\_\_\_D
Basic structural system (check one) ☐ Field Test ☐ Presumptive ☐ Historical Data Bearing Wall ☐ Dual w/ Special Moment Frame

Dual w/ Intermediate R/C or Special Steel ☐ Building Frame ☐ Inverted Pendulum Seismic base shear  $V_X = 18 \text{ kips}$   $V_Y = 18 \text{ kips}$ Analysis Procedure ☐ Simplified ☐ Equivalent Lateral Force ☐ Modal Architectural, Mechanical, Components anchored? No

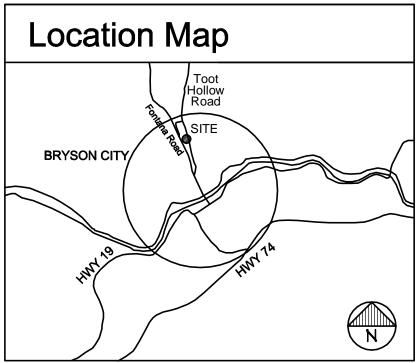
☐LATERAL DESIGN CONTROL: ■ Earthquake ☐ Wind SOIL BEARING CAPACITIES: Field Test (provide copy of test report) \_\_\_\_\_psf Presumptive Bearing capacity Pile size, type, and capacity \_

				PLUMI	BING FIX	TURE	REQU	IREMEN	ITS				
Jse		Waterclosets		Urinals	La	Lavatories		Showers/Tubs			Drinking Fountains		
		М	F	Unisex		М	F	Uni	М	F	Unisex	Regular	Accessible
S-1 Storage	Provided	0	0	0	0	0	0	0				0	0
a) (b)	Required	0	0	0	0	0	0	0				0	0

(a) An existing 4,000 sf storage building will be demolished by owner; the new structure shall replace it as part of this project. Campus occupant load is therefore reduced, no additional fixtures required for the campus. (b) Per 403.4, access to employee toilet facilities shall be from employees working area. Travel distance to employee toilets in the adjacent office/assembly building is 160', complies with requirements of 403.4.1

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, etc., describe below)

State Construction Office



#### **ENERGY SUMMARY:**

#### **ENERGY REQUIREMENTS:**

Climate Zone:

R-Value of Insulation: 30

The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designershall furnish the required portions of the project information for the plan data sheet. If energy cost budget method, state the annual energy cost budget vs. allowable energy cost budget.

□ 3 ■ 4A □ 5A Method of Compliance: ■ Prescriptive (Energy Code)

☐ Performance (Energy Code) ☐ Prescriptive (ASHRAE 90.1)

☐ Performance (ASHRAE 90.1 2007 for LEED-NC 2009 Compliance) THERMAL ENVELOPE:

Roof/ceiling Assembly: Description of assembly: Standing seam metal panels over 6" rigid insulation on steel deck, U-Value of total assembly: 0.033

Skylights in each assembly: U-Value of skylight: N/A Description of assembly: 8" CMU, 2" rigid insulation, air space, brick veneer

U-Value of total assembly: 0.074 R-Value of Insulation: 10 ci Openings: (windows or doors with glazing): U-Value of assembly: 0.45

Solar Heat Gain Coefficient: 0.25 projection factor: <0.25 Door R-Values: 2.0

Description of assembly: 6" steel studs @ 16" o.c. w/ R-13 batt insulation, gypsum sheathing, 2" rigid insulation, metal wall panels U-Value of total assembly: 0.047 R-Value of Insulation: R-13 + R-10 ci

Openings: (windows or doors with glazing): Translucent Panels (Alternate 1) U-Value of assembly: 0.29 Solar Heat Gain Coefficient: 0.25 projection factor: <0.25

Door R-Values: N/A Walls adjacent to unconditioned space: N/A

Walls below grade (each assembly): N/A Floors over unconditioned space (each assembly): N/A

Description of assembly: 6" concrete slab over vapor barrier, 4" stone base U-Value of total assembly: 0.067 R-Value of Insulation: 15 Horizontal/vertical requirement: 24 inches

Section 502.4.3 Sealing of the Building Envelope (Indicate where details are in the set)

Join around fenestration and door frames - Sheet A-4 Junction between walls and foundations, walls at building corners, walls and structural floors or roofs, wall and roof or wall panels - Sheets A-3

Openings at penetrations of utility services through roofs, walls, and floors, including but not limited to electrical, plumbing, mechanical, security and communications. - Sheets A-1,A-4 and M1.0.

☐ Site built fenestration and doors Joints, seams and penetration of air barrier syste - Sheet A-2 & A-3

☐ Other openings in the buildinhg envelope.

MECHANICAL SUMMARY MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Slab heated: No

Thermal Zone: summer dry bulb: 88°F Interior design conditions

winter dry bulb: 72°F summer dry bulb: 74°F relative humidity: 30%-60% Building heating load: 160 MBH

Building cooling load: NA Mechanical Spacing Conditioning System: NG FIRED UNIT HEATER description of unit: heating efficiency:

> cooling efficiency: heat output of unit: cooling output of unit: Boiler - total boiler output. If oversized, state reason. NA

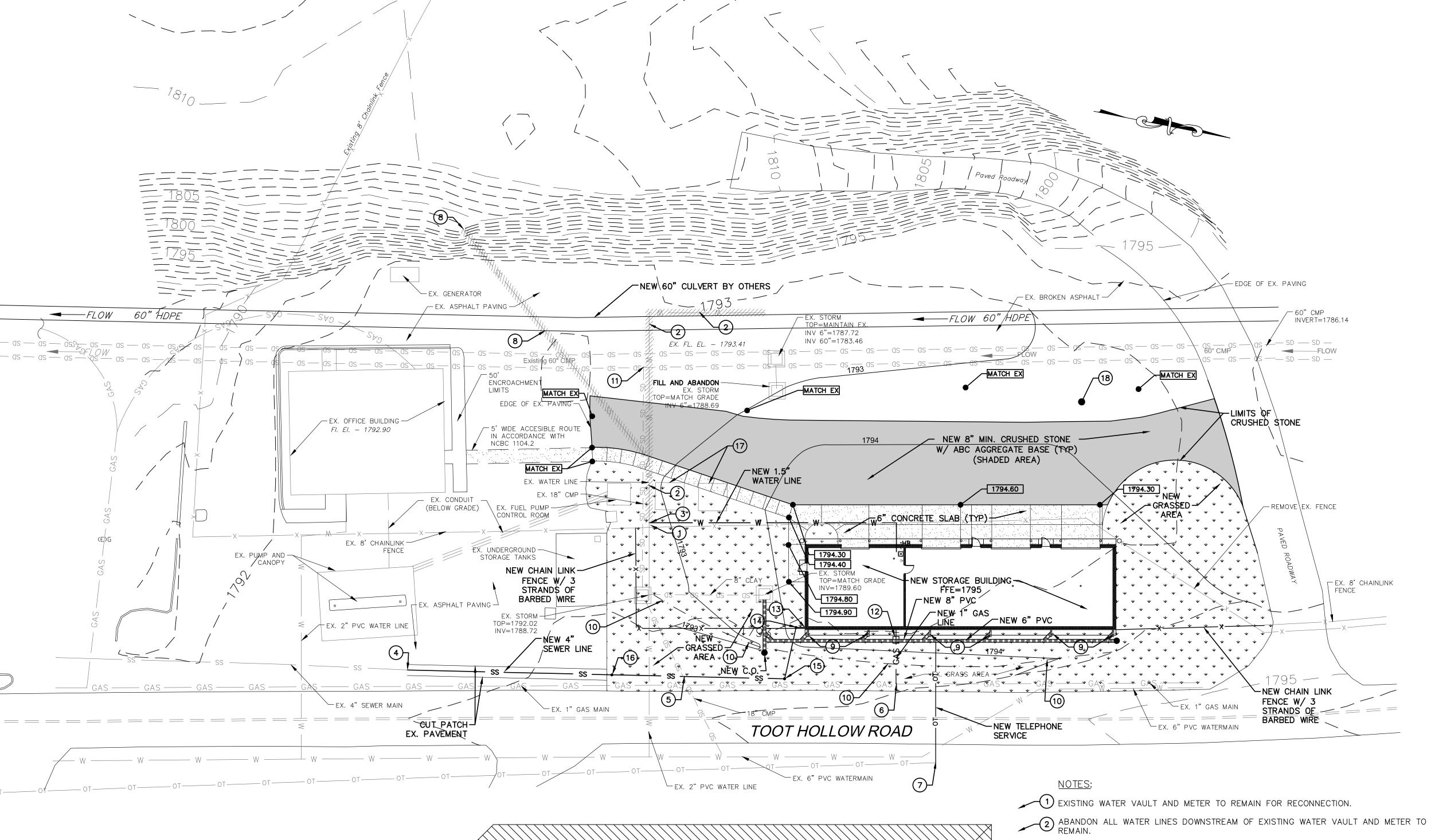
Chiller - total chiller capacity. If oversized, state reason. NA

List equipment efficiencies: 85° FOR GAS FIRED HEATER Equipment schedules with motors (mechanical systems)

motor horsepower: |/4 number of phases: |Φ minimum efficiency: 85% motor type: ⊤EC # of poles:

ELECTRICAL SUMMARY SEE ELEC. DWGS, SHEET E0.1





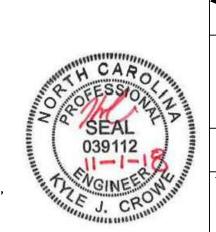
ALL NEW UNDERGROUND LINES AND LINES DISCOVERED DURING EXCAVATION OUTSIDE OF BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING;

- METALLIC LINES SHALL BE IDENTIFIED WITH DURABLE PRINTED PLASTIC WARNING TAPES, MINIMUM 3 INCHES
- WIDE WITH LETTERING TO IDENTIFY BURIED LINE BELOW. NON-METALLIC PIPES, OTHER THAN GAS LINES SHALL BE IDENTIFIED BY DETECTABLE WARNING TAPE, MINIMUM 2 INCHES WIDE, WITH LETTERING TO IDENTIFY BURIED LINE BELOW. 2012 NC FUEL GAS CODE, SECTION 404.15.3 TRACER: AN INSULATED COPPER TRACER WIRE OR OTHER
- APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO THE UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVEGROUND AT THE END OF THE NONMETALLIC PIPING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN 18AWG AND THE INSULATION TYPE SUITABLE FOR DIRECT BURIAL.
- ALL ADDITIONAL SOILS REQUIRED TO ATTAIN NEW GRADES ARE INCLUDED IN THE CONTRACT.

- 3 CONNECT NEW 1.5" WATER TO EXISTING 2" WATER AT DISCHARGE OF EXISTING WATER METER.
- 4 CONTRACTOR SHALL CONFIRM INVERT OF EXISTING 4" PVC SANITARY PRIOR TO CONNECTING NEW 4" PVC SANITARY LINE AND INSTALL CLEANOUT AT CONNECTION
- 5 CONFIRM CROSSING POINT OF EXISTING 18" CMP PRIOR TO INSTALLING NEW 4" PVC SANITARY.
- METER AT BUILDING. CONNECT NEW ELECTRICAL SERVICE TO EXISTING POWER POLE. LOCAL UTILITY TO PROVIDE TRANSFORMER.

6 CONNECT NEW 1" NATURAL GAS LINE TO EXISTING. LOCAL UTILITY TO PROVIDE GAS

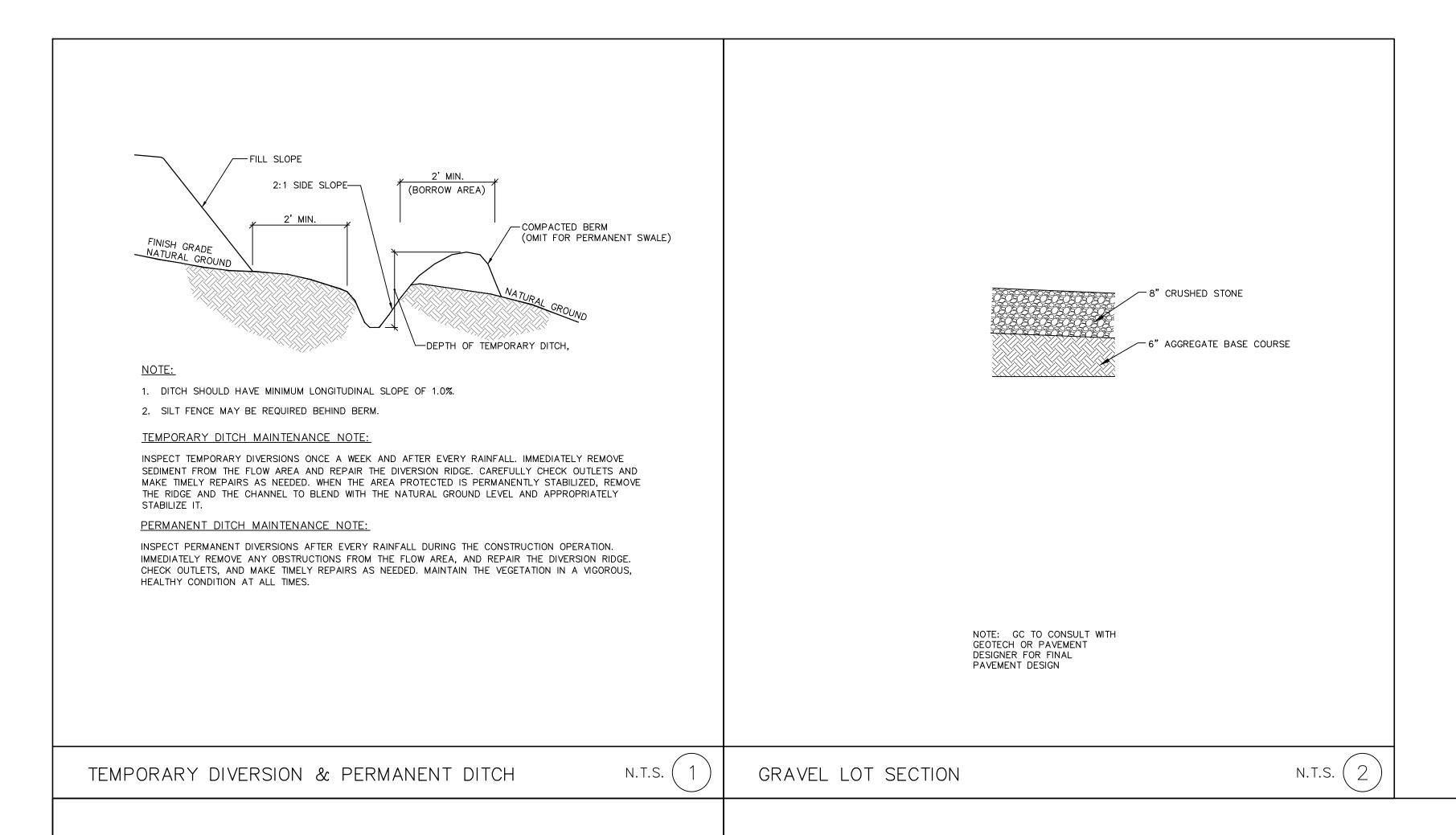
- 8 CONTRACTOR TO COORDINATE WITH AND ASSIST LOCAL UTILITY FOR REMOVAL OF OVERHEAD POWER, METER, METER BASE, ETC.
- 9 NEW PVC ROOF DRAIN LEADERS CONNECTED TO DOWNSPOUTS
- 10 SWALE FOR STORM WATER MANAGEMENT.
- EX. APPARENT INTERSECTION OF 18" CMP WITH 60" CMP. EXACT LOCATION UNKNOWN.
- 12) APPROXIMATE LOCATION OF GAS METER AND MAIN GAS SHUT OFF.
- BUILDING DRAIN INV OUT =1792.00'
- SEWER CLEANOUT INV=1791.90'
- 15 SEWER CLEANOUT INV=1790.15
- 16) SEWER CLEANOUT INV=1789.50'
- 17 RELOCATE EXISTING SHED. COORDINATE WITH DOT REP.
- 18 GC SHALL SLOPE TO EX. GRADE @ 20:1 SLOPE TO MINIMIZE IMPACT TO EXISTING

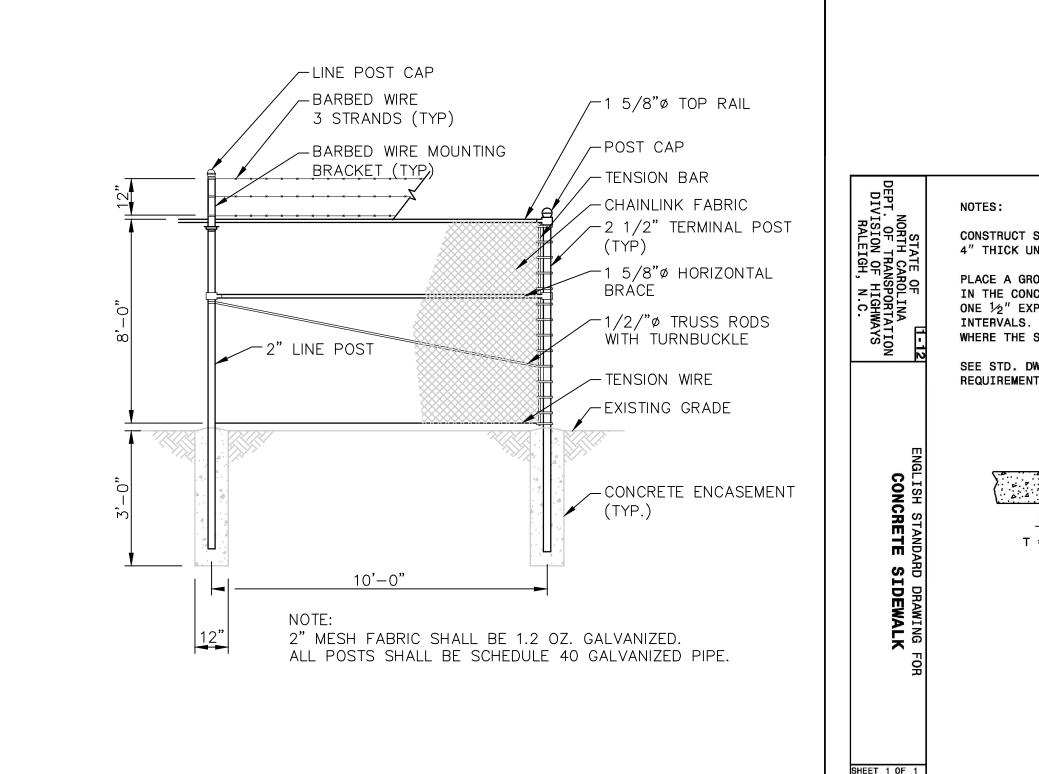


SCALE: 1"=20' (Horiz.)

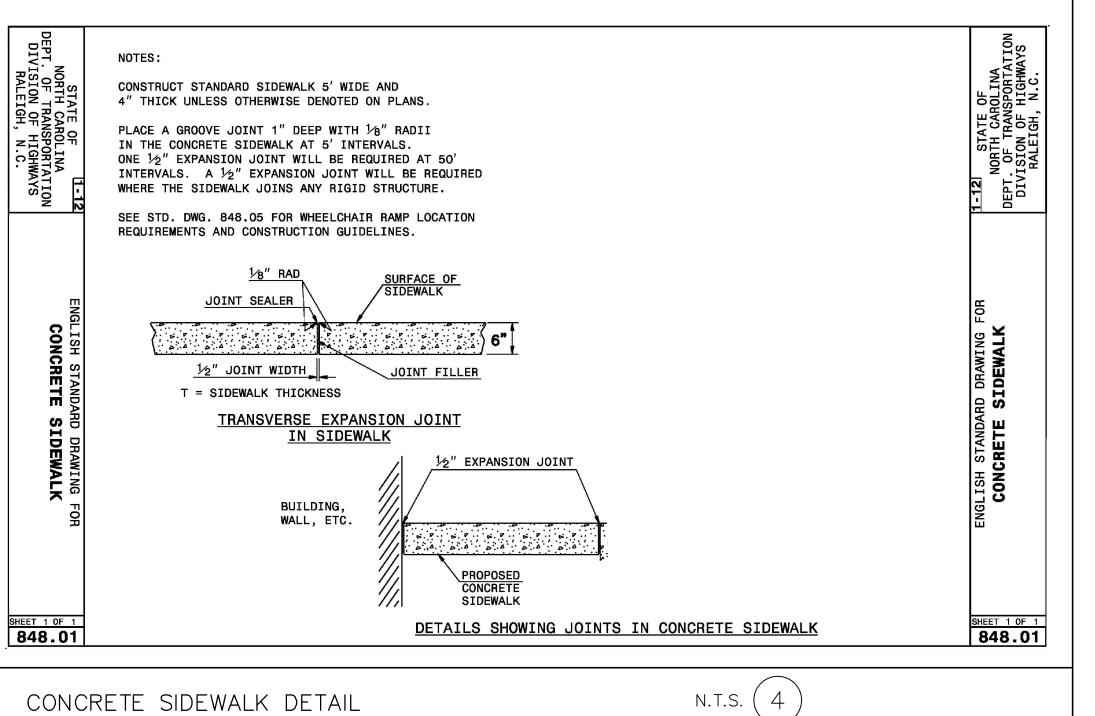








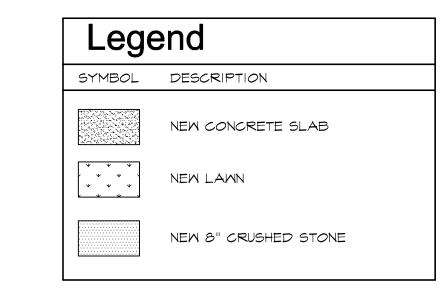
N.T.S. (3

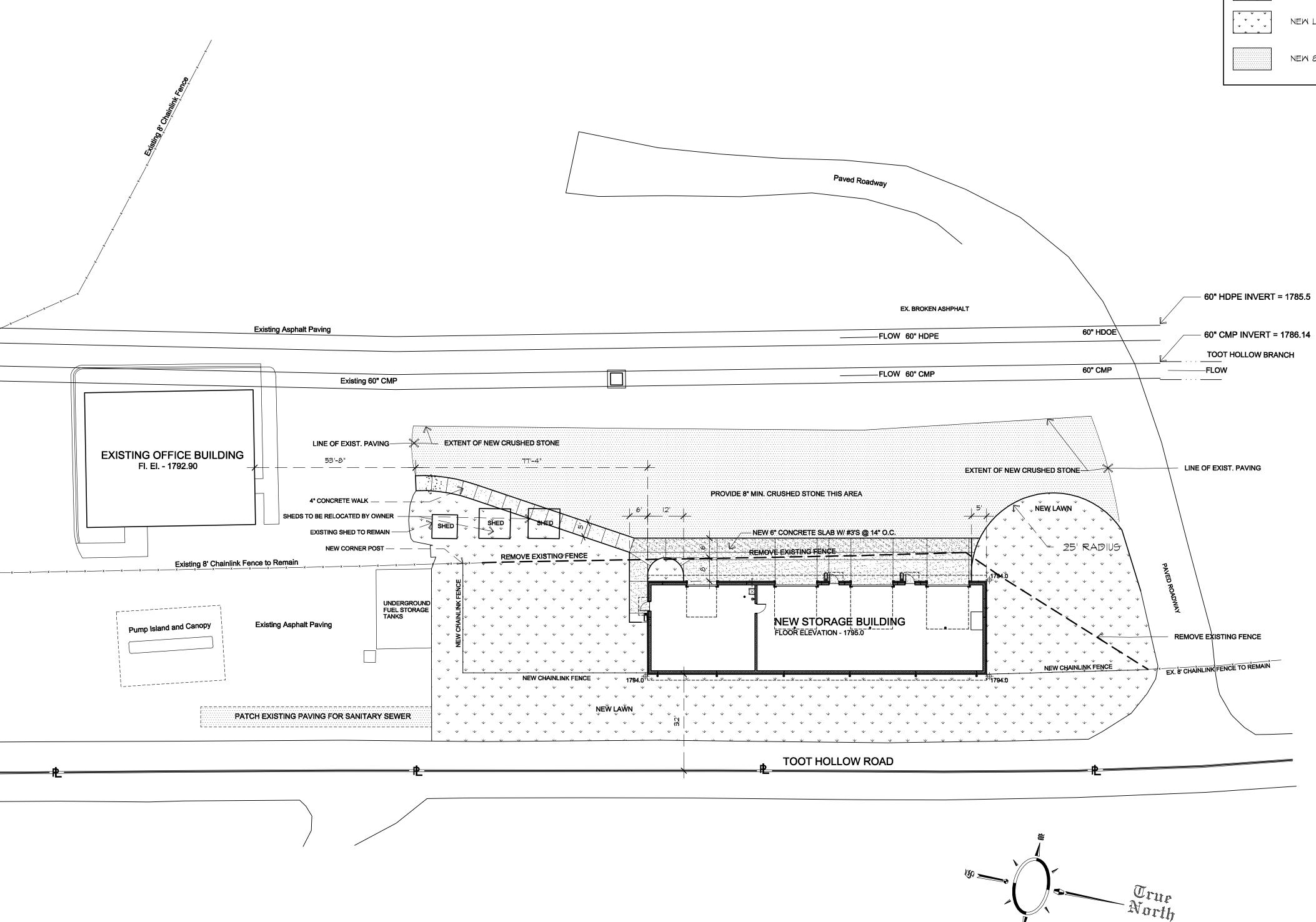




CHAIN LINK FENCE DETAIL











Life Safety Plan Legend

COCCUPANT LOAD

TRAVEL: 76' ← MAX. TRAVEL DISTANCE

EXIT

δ<sub>FE</sub> FIRE EXTINGUISHER

DISTANCE TO PROPERTY LINE > 10'

Life Safety Plan

**PLAN NORTH** 

Life Safety Plan Notes

REQUIRING ONLY ONE EXIT.

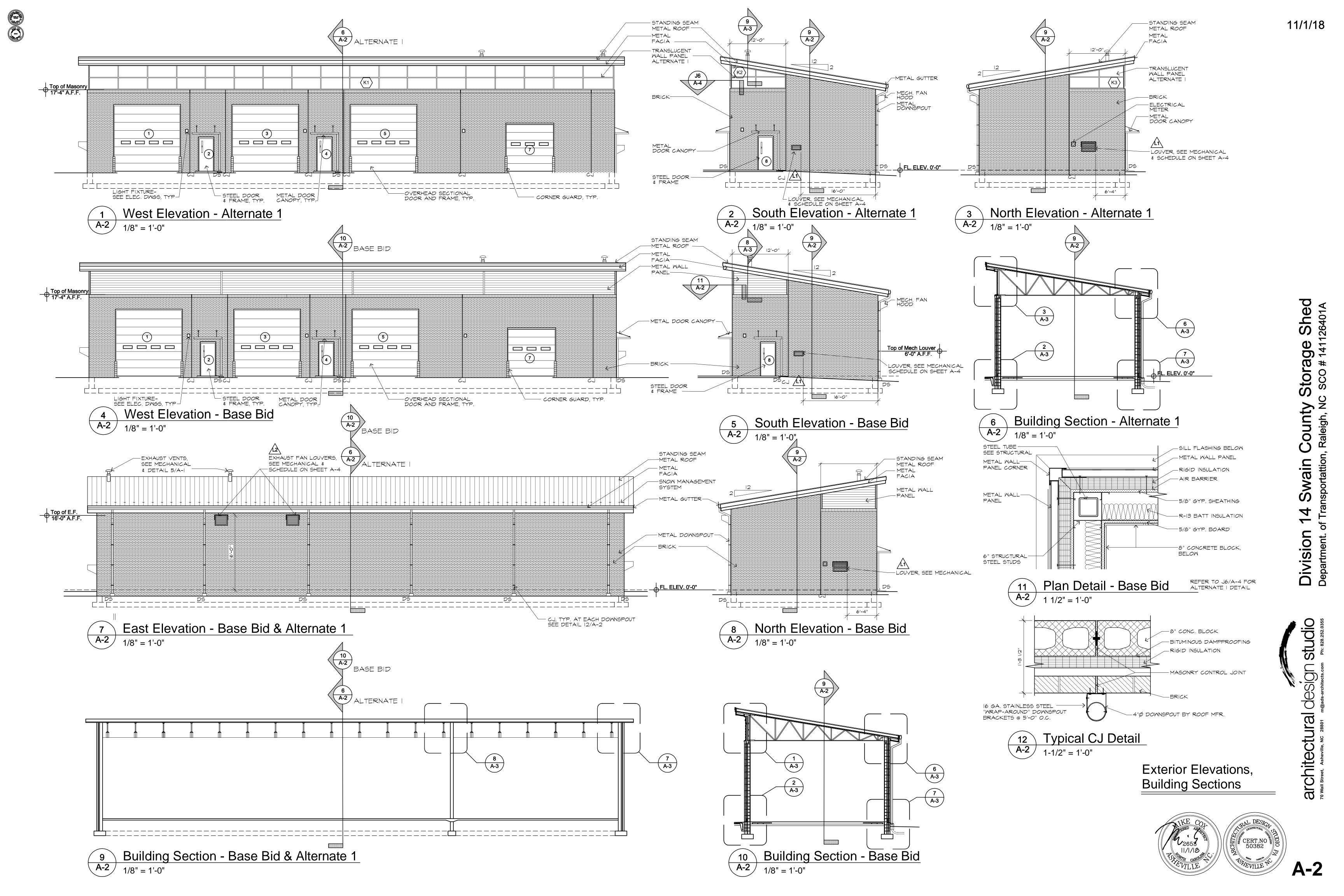
3. PANIC HARDWARE NOT REQUIRED PER 1008.1.10.

REFER TO SITE PLAN, SP-1, FOR CONTINUATION OF EGRESS PATH. EXIT SIGNS NOT REQUIRED PER 1101.1, EXCEPTION 1, SPACES

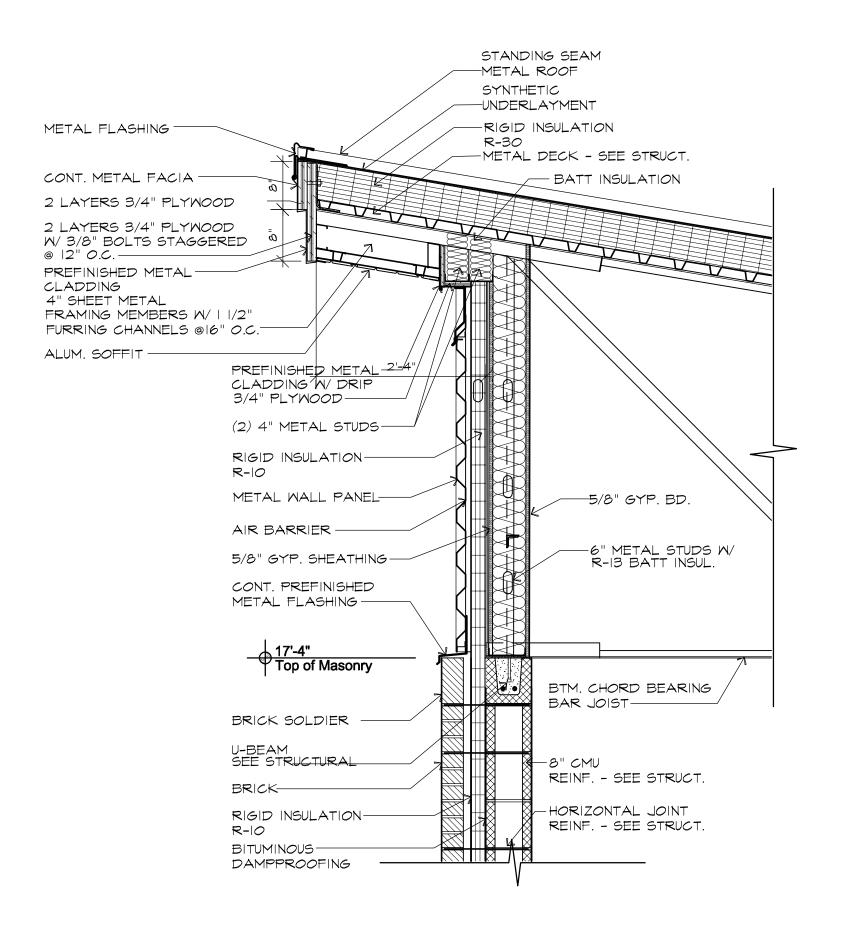
studio architectural design 70 Wall Street, Asheville, NC 28801 m@ads-architects.com

Floor Plan, Reflected Ceiling Plan, Life Safety Plan











HORIZONTAL JOINT

-1/2" SEALANT, CONT.

—CONC. SLAB - SEE STRUCTURAL

REINF. - SEE STRUCT.

-CRUSH STONE BASE-

#3'S @ |4" O.C.

-VAPOR BARRIER

DAMPROOFING

CELLS FILLED

GROUT SOLID

TO BOTTOM OF INSUL.

WITH GROUT TO FFE

EACH WAY

BITUMINOUS

BRICK -

8" СМU —

Elev. 0'-0"
Top of Slab

#3'5 @ |4" *0.*C. EACH WAY —

4" CONC.

30# FELT-

RIGID INSUL.

R-15 UNDER SLAB-

CONC. FOOTING -

SEE STRUCTURAL-

BLOCK-

RIGID INSUL. R-10

EMBEDDED FLASHING-

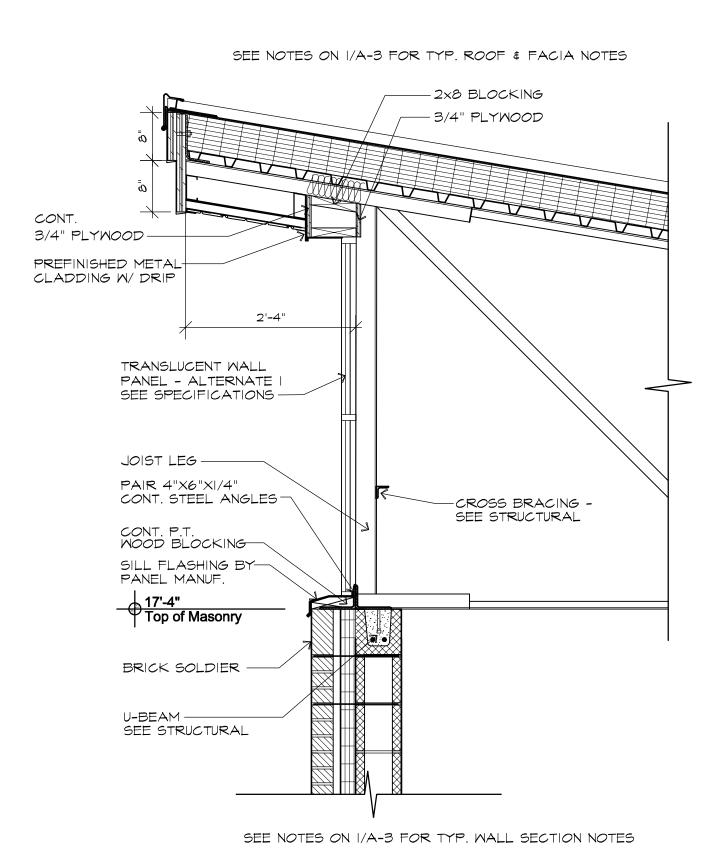
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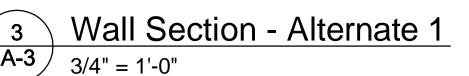
ABOVE SLAB

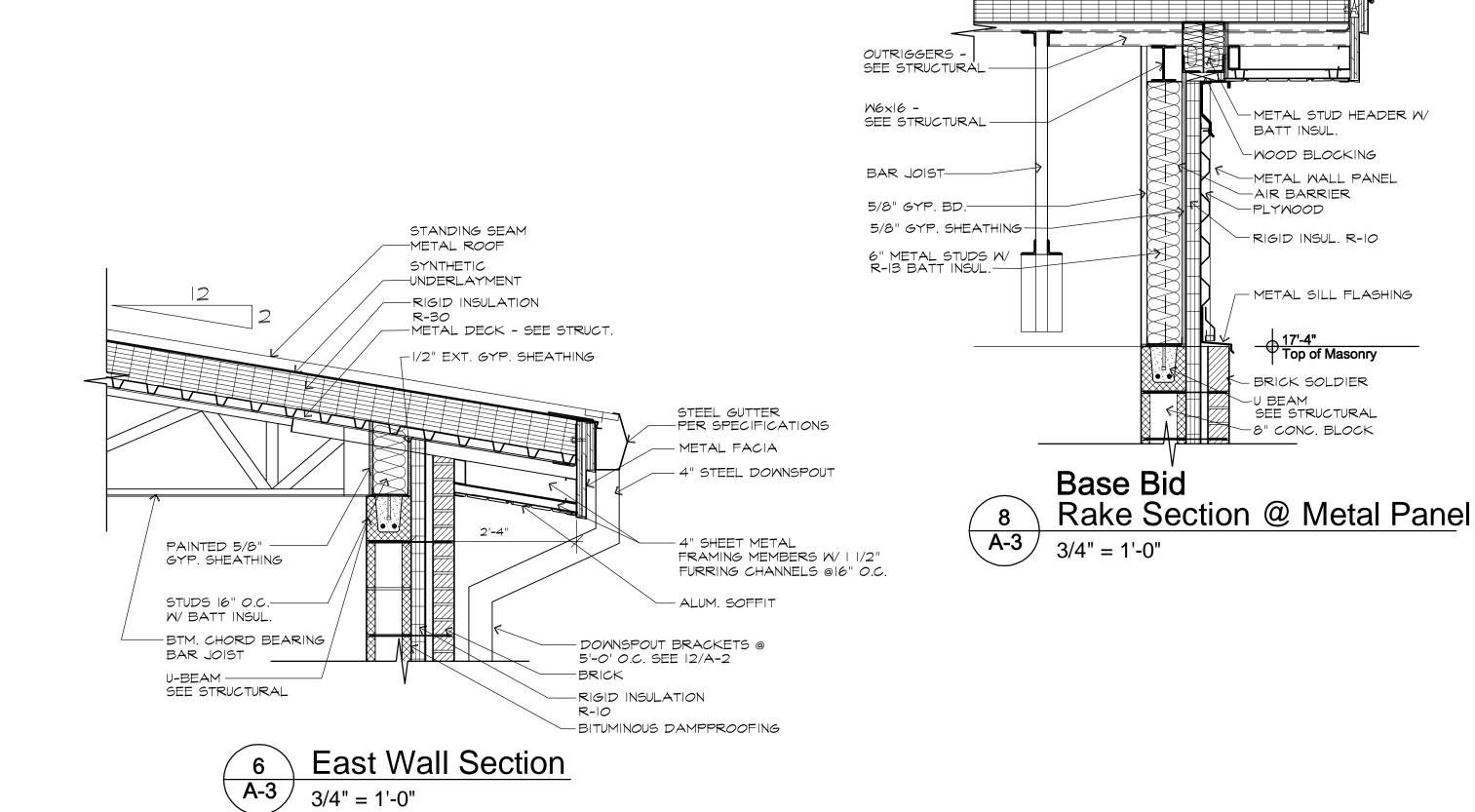
MORTAR SHEILD . WEEP —

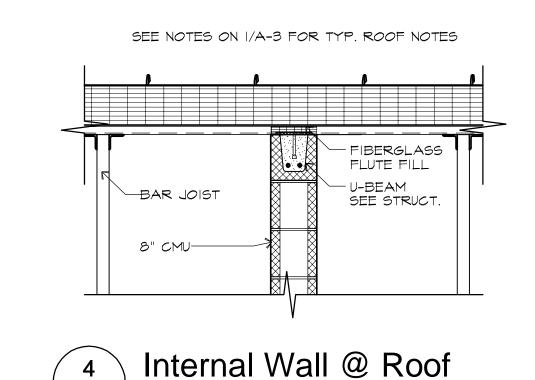
1/2" SEALANT-

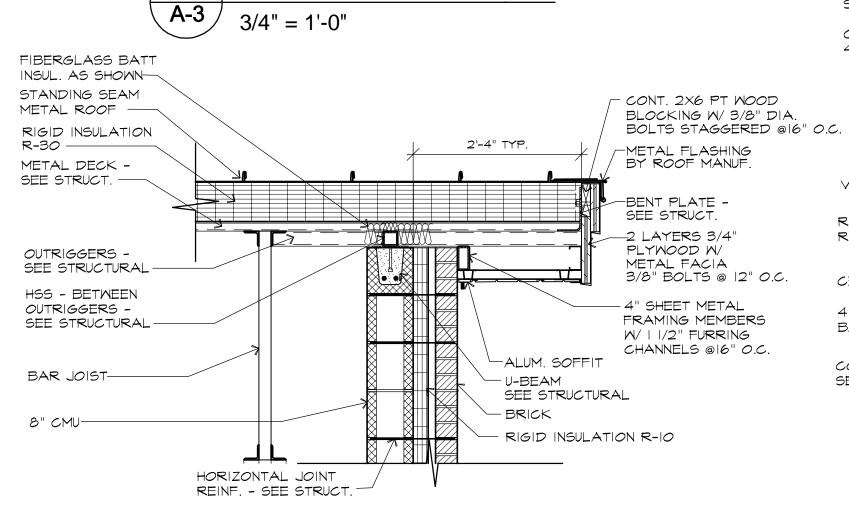
BACKER ROD -

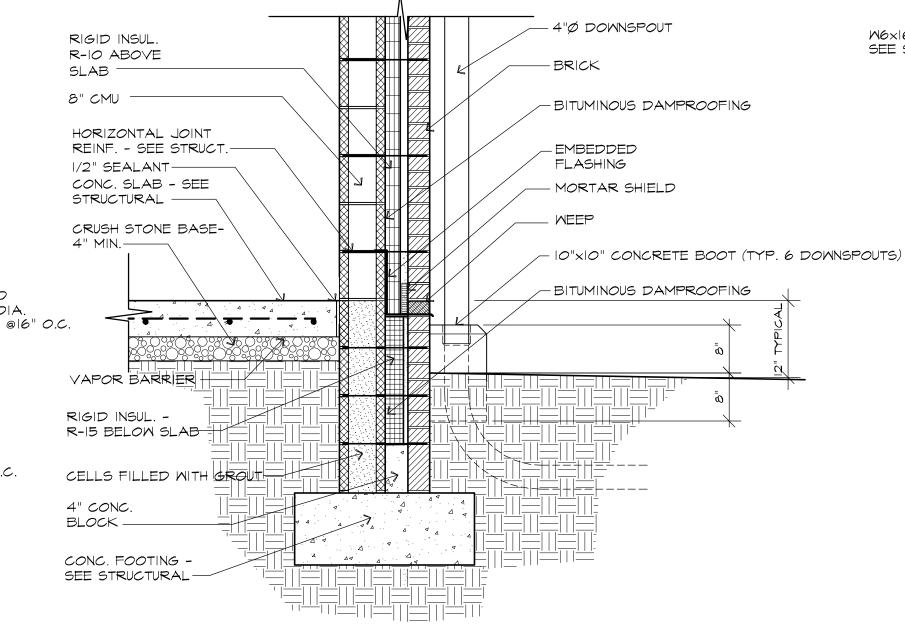


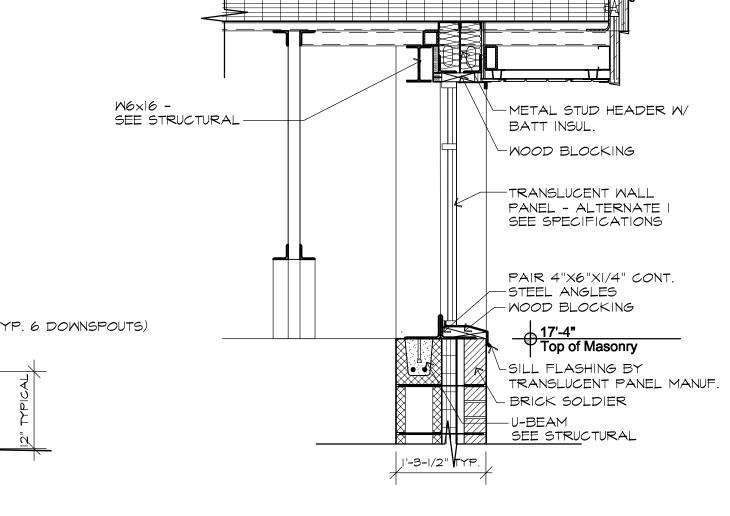






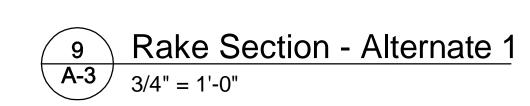






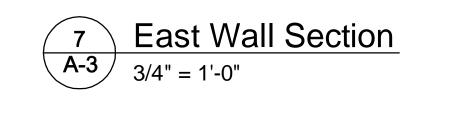
SEE NOTES ON 5/A-3 FOR TYP. ROOF & FACIA NOTES

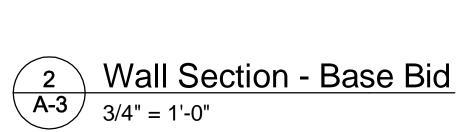
SEE NOTES ON 5/A-3 FOR TYP. ROOF & FACIA NOTES







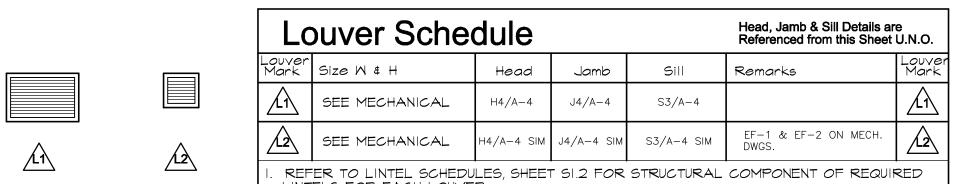








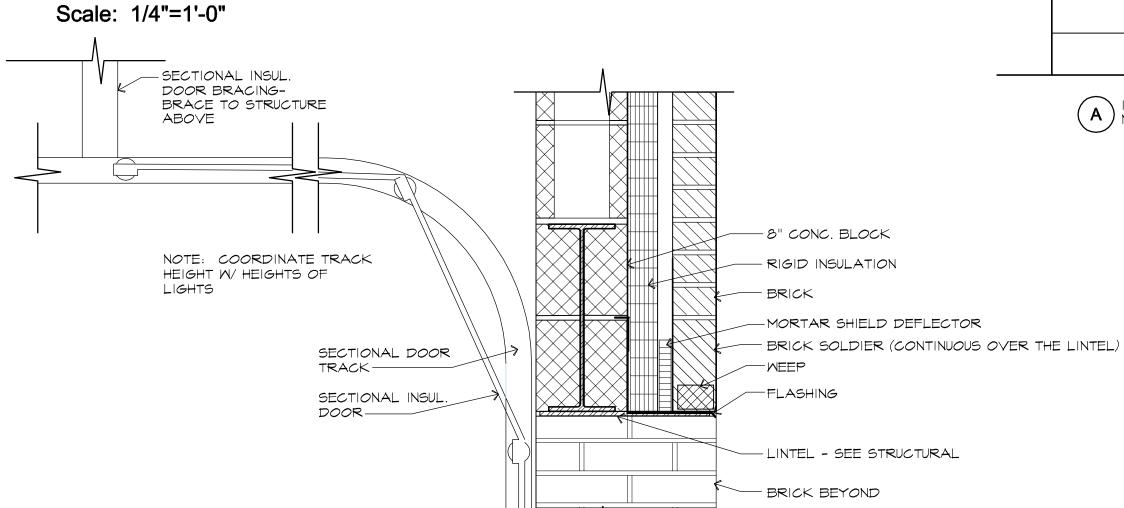
Louver Types

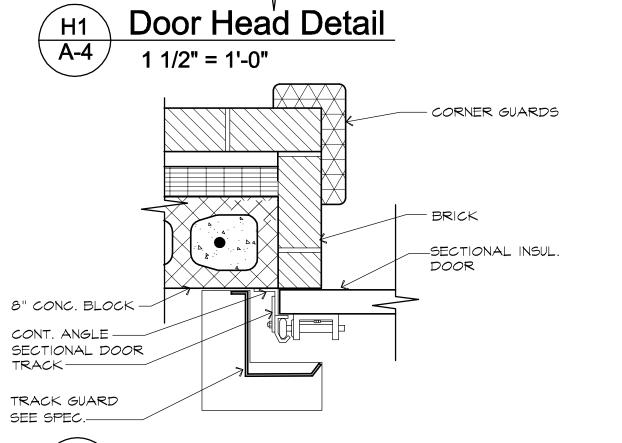


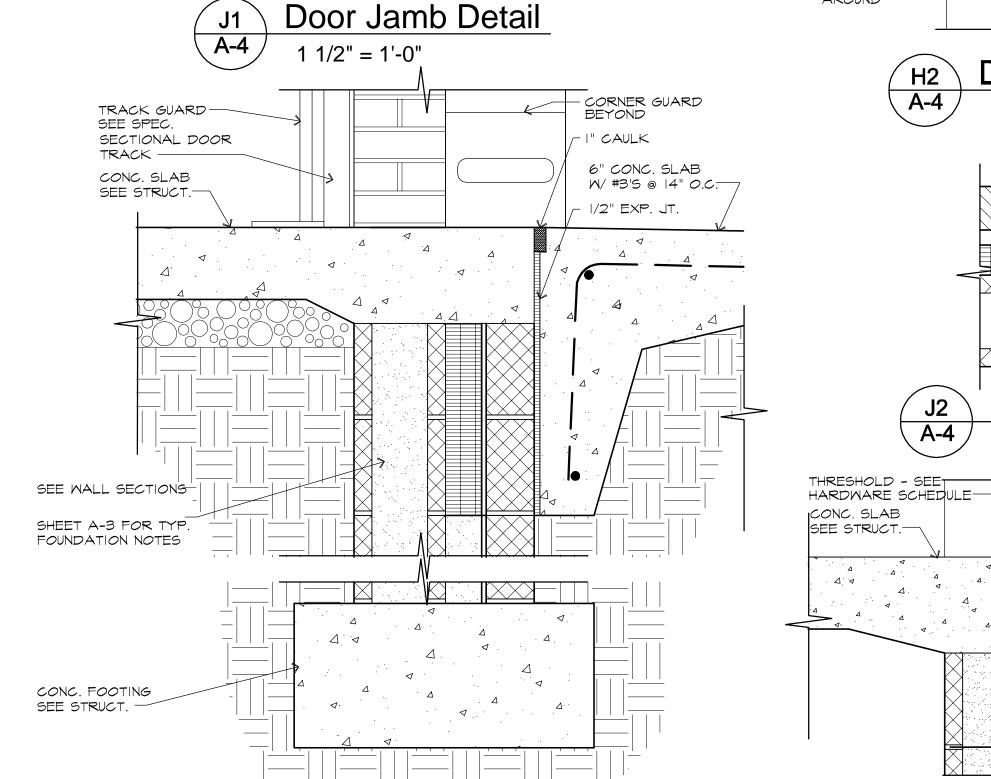
LINTELS FOR EACH LOUVER. 2. LOUVERS ARE BY MECHANICAL, MED. BRONZE. REFER TO SHEET MI.O FOR SIZES.

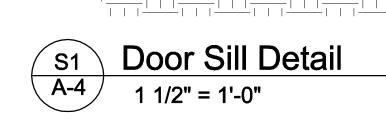
INSULATED GLASS VIEW PANELS INSULATED 3"x 30" VIEW PANEL B 10' X 10' OVERHEAD INSULATED C HOLLOW METAL METAL SECTIONAL DOOR A) 14' X 14' OVERHEAD INSULATED METAL SECTIONAL DOOR D HOLLOW METAL 1 HOLLOW METAL FRAME

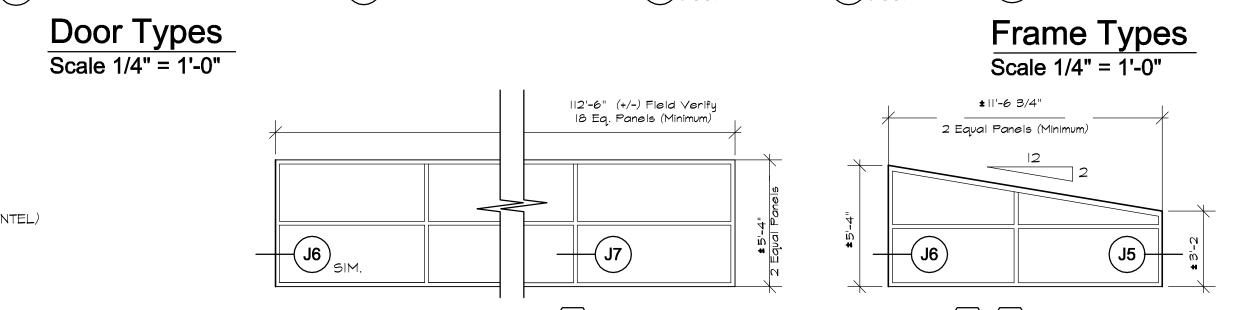
Do	Door Schedule  Refer to Details This Sheet for Head Jamb \$ SIII Numbers Listed Below, v.o.n.									
Door No.	Size	Door Type	Frame Type	Head	Jamb	Sill	Remarks	Label Min.	HDM	Door No.
I	4'-0" ×  4'-0"	A		HI/A-4	JI/A-4	SI/A-4	INSUL. OH SECT. DOOR	-	I	ı
2	3'-0" × 7'-0" × 1-3/4"	C	ı	H2/A-4	J2/A-4	S2/A-4		-	2	2
3	4'-0" ×  4'-0"	А		HI/A-4	JI/A-4	SI/A-4	INSUL. OH SECT. DOOR		I	3
4	3'-0" × 7'-0" × 1-3/4"	C		H2/A-4	J2/A-4	S2/A-4			2	4
5	4'-0" ×  4'-0"	А		HI/A-4	JI/A-4	SI/A-4	INSUL. OH SECT. DOOR		1	5
6	3'-0" × 7'-0" × 1-3/4"	D	ı	H3/A-4	J3/A-4	-			3	6
7	10'-0" × 10'-0"	В		HI/A-4	JI/A-4	SI/A-4	INSUL. OH SECT. DOOR		1	7
8	3'-0" × 7'-0" × 1-3/4"	C	1	H2/A-4	J2/A-4	52/A-4			2	8

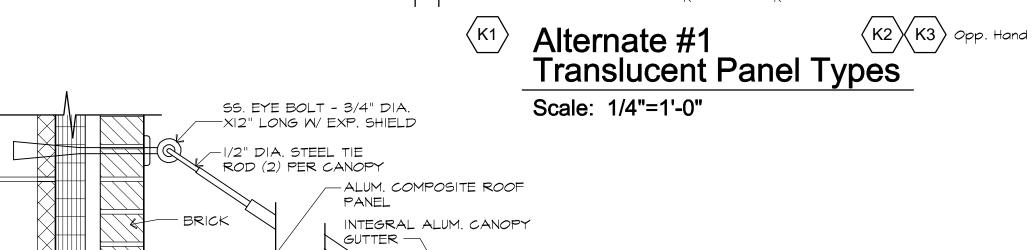












- BRICK SOLDIER (CONTINUOUS OVER THE LINTEL)

-MORTAR SHIELD DEFLECTOR

GROUT HOLLOW METAL FRAME

-SEALANT, ALL AROUND

-HOLLOW METAL FRAME

-HOLLOW METAL DOOR

HOLLOW METAL DOOR

6" CONC. SLAB
W/ #3'S @ 14" O.C.
@ STORAGE\_BUILDING

-JAMB ANCHOR

-8" CONC. BLOCK

HOLLOW METAL DOOR

-FLASHING

**Door Head Detail** 

**Door Jamb Detail** 

Door Sill Detail

1 1/2" = 1'-0"

1 1/2" = 1'-0"

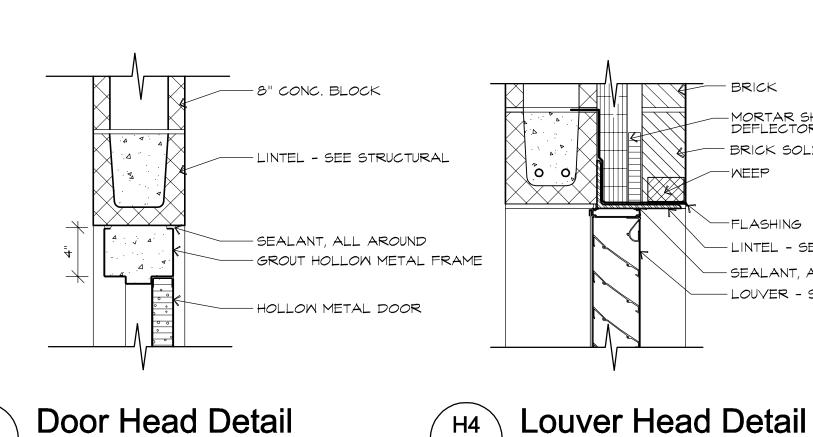
1 1/2" = 1'-0"

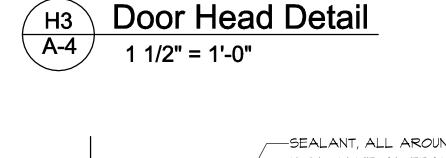
LINTEL - SEE STRUCTURAL

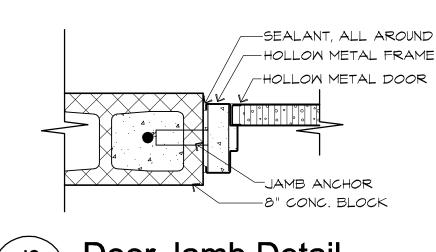
SEALANT, ALL AROUND ———

A-4

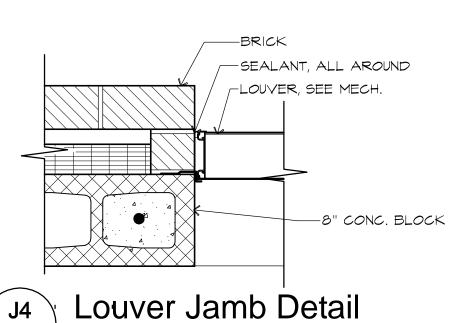
3'-0" Typ.

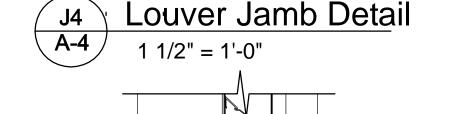






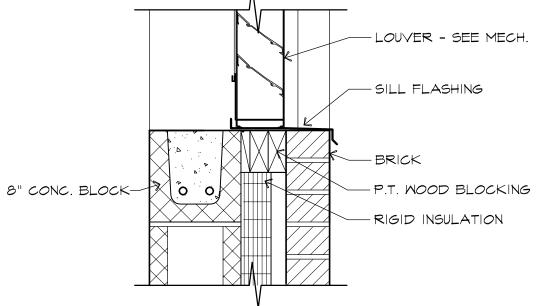
**Door Jamb Detail** 1 1/2" = 1'-0"

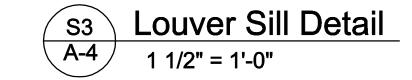


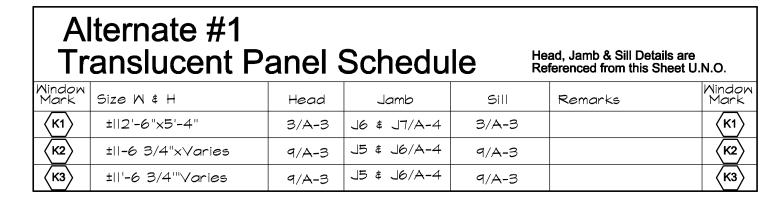


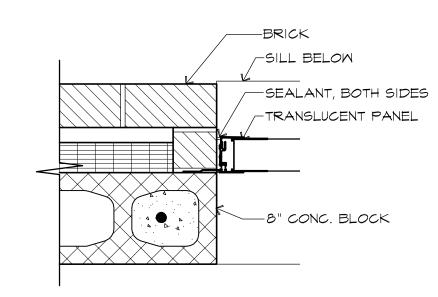
1 1/2" = 1'-0"

A-4









Alternate #1

Jamb Detail

1 1/2" = 1'-0"

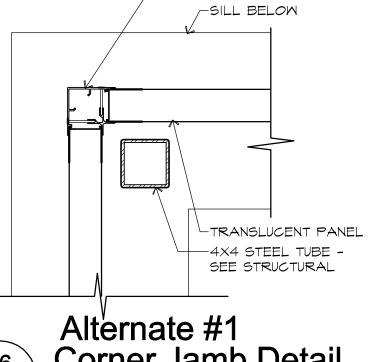
BRICK SOLDIER (CONTINUOUS OVER THE LINTEL)

-FLASHING

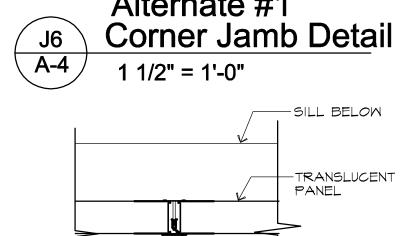
- LINTEL - SEE STRUCTURAL

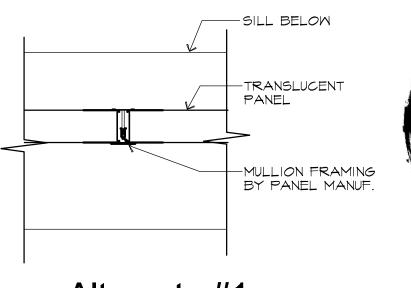
- SEALANT, ALL AROUND

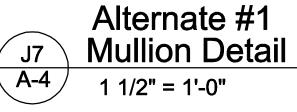
-LOUVER - SEE MECH.



TRANSLUCENT PANEL CORNER FRAME











architectural design

# STRUCTURAL ABBREVIATIONS

A.B.	ANCHOR BOLT	G.B.	GRADE BEAM	P/S	PRESTRESSED
ACI	AMERICAN CONCRETE INSTITUTE	GA.	GAGE; GAUGE	P/T	POST-TENSIONING
A.F.F.	ABOVE FINISHED FLOOR	GALV.	GALVANIZED	P.C.	PRECAST CONCRETE
AISC	AMERICAN INSTITUTE OF STEEL			PCI	PRESTRESSED CONCRETE
	CONSTRUCTION	H.M.	HOLLOW METAL		INSTITUTE
AITC	AMERICAN INSTITUTE OF TIMBER	H.S.	HIGH STRENGTH	PEN.	PENETRATION
AIIO	CONSTRUCTION	HEX. HD.	HEXAGONAL HEAD	PERP.	PERPENDICULAR
A.1 T					
ALT.	ALTERNATE	HSS	HOLLOW STRUCTURAL SHAPE	PL.	PLATE
ARCH.	ARCHITECTURAL	HT.	HEIGHT	PSF	POUNDS PER SQUARE FOOT
ASTM	AMERICAN SOCIETY FOR TESTING			PSI	POUNDS PER SQUARE INCH
	AND MATERIALS	I.D.	INSIDE DIAMETER	P.T.	PRESSURE TREATED
AVG.	AVERAGE	I.F.	INSIDE FACE	PTI	POST-TENSIONING INSTITUTE
AWS	AMERICAN WELDING SOCIETY	IN.	INCH;INCHES	PVC	POLYVINYL CHLORIDE
	,	IBC	INTERNATIONAL BUILDING CODE		. 01 02021
BLDG.	BUILDING	INT.	INTERIOR; INTERSECTION	R.	RADIUS
		IIN I .	INTERIOR, INTERSECTION		
BM.	BEAM		10107	R.D.	ROOF DRAIN
B.P.	BEARING PLATE;BASE PLATE	JST.	JOIST	RAD.	RADIUS
BRG.	BEARING	JT.	JOINT	REF.	REFERENCE
				REINF.	REINFORCE(D); REINFORCING
C.J.	CONSTRUCTION JOINT	K	KIP (1,000 LBS.)	REM.	REMAINING; REMAINDER
CMU	CONCRETE MASONRY UNIT	K/FT	KIPS PER FOOT	REQ'D.	REQUIRED
CGS	CENTER OF GRAVITY OF STEEL				
CL.	CENTERLINE	LLBB	LONG LEGS BACK TO BACK	S.J.	SAWED JOINT
CLG.	CEILING	LLH	LONG LEGS BACK TO BACK	S.S.	STAINLESS STEEL
CLR.	CLEAR	LLO	LONG LEG OUTSTANDING	S.W.	SHORT WAY
COL.	COLUMN	LLV	LONG LEG VERTICAL	SCHED.	SCHEDULE
CONC.	CONCRETE	L.W.	LONG WAY	SECT.	SECTION
CONN.	CONNECTION	LB.	POUND	SHT.	SHEET
CONST.	CONSTRUCTION	LG.	LONG	SIM.	SIMILAR
CONT.	CONTINUOUS	LIN.	LINEAR	SJI	STEEL JOIST INSTITUTE
CRSI	CONCRETE REINFORCING STEEL	LL	LIVE LOAD	SLBB	SHORT LEGS BACK TO BACK
O. to.	INSTITUTE	LT. WT.	LIGHT WEIGHT	SLO	SHORT LEG OUTSTANDING
CTR.	CENTER	L1. W1.	Elom Welom	S.O.G.	SLAB ON GRADE
OTN.	OLIVILIX	M.O.S.	MIDDLE OF CLAD		
D 0 1	DOMELED CONTROL IONE		MIDDLE OF SLAB	SPEC(S).	SPECIFICATION(S)
D.C.J.	DOWELED CONTROL JOINT	M.O.W.	MIDDLE OF WALL	SQ.	SQUARE
D.J.	DOUBLE JOIST	MATL.	MATERIAL	STD.	STANDARD
D.S.	DOWN SPOUT	MAX.	MAXIMUM	STL.	STEEL
DBL.	DOUBLE	MIN.	MINIMUM	STRUCT.	STRUCTURAL
DET.	DETAIL	MISC.	MISCELLANEOUS	SYM.	SYMMETRICAL
DIA.	DIAMETER	MK	MARK		
DIAG.	DIAGONAL			T.O.C.	TOP OF CONCRETE
DIM.	DIMENSION	N/A	NOT APPLICABLE	T.O.F.	TOP OF FOOTING
DIWI. DL	DEAD LOAD	N.F.	NEAR FACE	T.O.S.	TOP OF SLAB; TOP OF STEEL
					•
DN.	DOWN	N.I.C.	NOT IN CONTRACT	T.O.W.	TOP OF WALL
DWG(S).	DRAWING(S)	N.T.S.	NOT TO SCALE	T&B	TOP AND BOTTOM
		N-S	NORTH-SOUTH	TEMP.	TEMPORARY
E.F.	EACH FACE	NCSBC	NORTH CAROLINA STATE BUILDING	THRU	THROUGH
E.S.	EACH SIDE		CODE	TYP.	TYPICAL
E.W.	EACH WAY	NO.	NUMBER		
E-W	EAST-WEST	NOM.	NOMINAL	U.L.	UNDERWRITERS LABORATORIES
EA.	EACH			U.N.O.	UNLESS NOTED OTHERWISE
EA. ELEV.	ELEVATION; ELEVATOR	O/C	ON CENTER	U.IN.U.	ONLEGO NOTED OTHERWISE
				MIC	WITHOUT
ENGR.	ENGINEER	O.D.	OUTSIDE DIAMETER	W/O	WITHOUT
EQ.	EQUAL	O.F.	OUTSIDE FACE	W/	WITH
EXIST.	EXISTING	OPNG.	OPENING	W.P.	WORKING POINT
E.J.	EXPANSION JOINT	OPP.	OPPOSITE	W.W.F.	WELDED WIRE FABRIC
EXT.	EXTERIOR	O.H.	OPPOSITE HAND		
		ORIG.	ORIGINAL	Χ	BY
F.D.	FLOOR DRAIN	<del></del> •	-		
	. 2001. 010 1111				

FAR FACE

**FLOOR** 

EL ANCE

F.O.B.

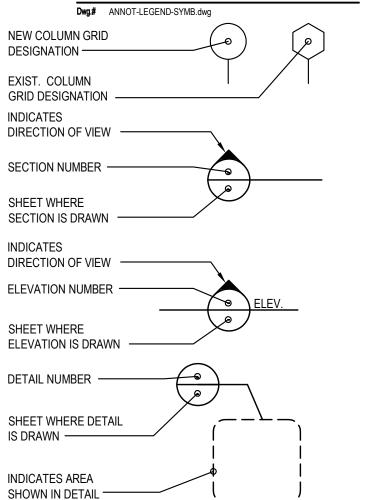
**FOUNDATION** 

FACE OF BRICK

FOOT: FEET

FOOTING

### DRAWING SYMBOL LEGEND



#### STRUCTURAL DESIGN DATA

- CODES AND STANDARDS
- A. 2012 N. C. REVISIONS TO THE 2009 INTERNATIONAL BUILDING CODE.
- B. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-05.
- C. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-08.
- D. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530-08.
- E. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC 360-05.
- F. AF&PA NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
- 2. FOUNDATIONS:
- A. FOOTINGS ALLOWABLE SOIL BEARING PRESSURE
- 2500 PSF 20 PSF B. ROOF LIVE LOAD (MINIMUM) C. ROOF TRUSS LOADS: (1) LIVE LOADS 20 PSF
- (a) TOP CHORD (MINIMUM) 5 PSF (b) BOTTOM CHORD - ATTIC (2) DEAD LOADS (a) TOP CHORD
- (b) BOTTOM CHORD SUSPENDED (3) DEAD LOADS - MINIMUM VALUES FOR USE WITH WIND UPLIFT (a) TOP CHORD 3 PSF
- (b) BOTTOM CHORD SUSPENDED D. ROOF SNOW LOADS: (1) GROUND SNOW LOAD. (2) FLAT ROOF SNOW LOAD

15 PSF

15 PSF

1.0

1.0

1.0

90 MPH

2.5

2.25

0.87

18 KIPS

18 KIPS

(5) Ce (6) Ct.

(3) OCCUPANCY CATEGORY

(4) IMPORTANCE FACTOR

- OTHER DEAD LOADS: PER CONSTRUCTION SHOWN ON DWGS WIND LOADS: A. BASIC WIND VELOCITY B. OCCUPANCY CATEGOR'
- C. IMPORTANCE FACTOR 1.0 D. EXPOSURE CATEGORY +/-0.18 E. INTERNAL PRESSURE COEFFICIENT F. DESIGN BASE SHEAR: ASSEMBLY BUILDING / STORAGE BUILDING (1) EAST-WEST DIRECTION
- 5 KIPS (2) NORTH-SOUTH DIRECTION 12 KIPS 4. EARTHQUAKE LOADS: A. MAPPED SPECTRAL RESPONSE ACCELERATION, SHORT PERIOD SS = 0.374B. MAPPED SPECTRAL RESPONSE ACCELERATION, 1 SECOND PERIOD S1 = 0.119C. DESIGN SPECTRAL RESPONSE ACCELERATION, SHORT PERIOD SDS = 0.374D. DESIGN SPECTRAL RESPONSE ACCELERATION, 1 SECOND PERIOD SD1 = 0.184E. SITE CLASS. F. OCCUPANCY CATEGORY (SEISMIC USE GROUP) 1.0 G. IMPORTANCE FACTOR
- H. SEISMIC DESIGN CATEGORY I. SEISMIC FORCE RESISTING SYSTEM (1) BEARING WALLS - INTERMEDIATE REINFORCED MASONRY SHEAR WALLS (2) RESPONSE MODIFICATION COEFFICIENT (R) 3.5
- (3) SYSTEM OVERSTRENGTH FACTOR ( $\Omega$ O) (4) DEFLECTION AMPLITUDE FACTOR (Cd) (5) SEISMIC RESPONSE COEFFICIENT (Cs)
- J. ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE
- K. DESIGN BASE SHEAR:
- (1) EAST-WEST DIRECTION.
- (2) NORTH-SOUTH DIRECTION.

#### **FOUNDATIONS**

- THE CONTRACTOR IS TO REVIEW THE SUBSURFACE EXPLORATION REPORT PERFORMED FOR THIS PROJECT BY BUNNELL-LAMMONS ENGINEERING, INC. (BLE JOB NO: J15-10304-01) BEFORE COMMENCEMENT OF SITE GRADING TO BECOME GENERALLY FAMILIAR WITH SUBSURFACE CONDITIONS WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION. ALL SUBGRADE PREPARATION SHALL BE PERFORMED AS DEFINED IN THE PLANS AND SPECIFICATIONS AND IN COOPERATION WITH THE OWNER'S GEOTECHNICAL TESTING SERVICE.
- SPECIAL FOUNDATIONS FOR THE SUPPORT OF MECHANICAL, ELECTRICAL, OR OTHER EQUIPMENT INSIDE OR OUTSIDE OF THE BUILDING SHALL BE DESIGNED BY THE EQUIPMENT SUPPLIER(S) AND REVIEWED BY THE STRUCTURAL ENGINEER FOR COMPATIBILITY WITH THE BUILDING FOUNDATION SYSTEM. DRAWINGS OF THE FOUNDATIONS SHALL BE SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF NORTH
- FOUNDATION DRAINAGE AND GROUNDWATER CONTROL SYSTEMS MAY BE INDICATED IN PART ON THE STRUCTURAL DRAWINGS TO SHOW APPROXIMATE LOCATIONS RELATIVE TO CERTAIN STRUCTURAL COMPONENTS. FOUNDATION DRAINAGE AND GROUNDWATER CONTROL SYSTEMS ARE NOT A PART OF THE STRUCTURAL DESIGN. SEE OTHER DRAWINGS FOR DESIGN REQUIREMENTS OF THESE SYSTEMS.
- 4. ALL FOOTINGS ARE DESIGNED TO BEAR ON RESIDUAL SOIL OR COMPACTED ENGINEERED FILL AND TO HAVE A MINIMUM BEARING CAPACITY AS LISTED UNDER "STRUCTURAL DESIGN DATA" IN THE GENERAL NOTES. FOOTING EXCAVATIONS ARE TO BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY FOR SUITABLE SOILS, BEARING PRESSURE, AND COMPACTION. COMPACTION OF SOIL UNDER FOOTINGS TO BE 95% OF THE MAXIMUM STANDARD PROCTOR DRY DENSITY.

#### RETAINING WALLS:

- A. ALL RETAINING WALLS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR THE LATERAL EARTH PRESSURES SHOWN IN THE GENERAL NOTES UNDER STRUCTURAL DESIGN DATA. RETAINING WALLS REQUIRE A FOUNDATION DRAINAGE SYSTEM WHICH IS DESIGNED TO PREVENT THE BUILD-UP OF HYDROSTATIC PRESSURE BEHIND THE WALL.
- B. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL WALL MATERIALS HAVE REACHED THEIR REQUIRED STRENGTH AND ANY REQUIRED BRACING IS INSTALLED. BACKFILL NON-RETAINING FOUNDATION WALLS SIMULTANEOUSLY ON BOTH SIDES.
- 6. SEE FOUNDATION PLAN NOTES FOR FURTHER REQUIREMENTS.

CONCRETE SHALL BE NORMAL WEIGHT CONCRETE UNLESS NOTED OTHERWISE. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM 28-DAY COMPRESSIVE STRENGTHS UNLESS NOTED OTHERWISE IN THE PLANS OR SPECIFICATIONS.

#### PERMANENTLY EXTERIOR EXPOSED CONCRETE 4000 PSI

- ALL OTHER CONCRETE CONCRETE PERMANENTLY EXPOSED TO WEATHER SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45 AND SHALL CONTAIN APPROXIMATELY 6% ENTRAINED AIR. SEE SPECIFICATIONS FOR FURTHER
- CONCRETE SHALL BE BATCHED USING MATERIALS AND PROPORTIONS DESIGNATED IN THE APPROVED DESIGN MIXES. THE GENERAL CONTRACTOR SHALL PROVIDE QUALITY CONTROL OF THE CONCRETE MIX.
- 4. CONCRETE SLUMP SHALL BE AS INDICATED IN THE SPECIFICATIONS. THE ADDITION OF WATER TO INCREASE SLUMPS ABOVE THE LEVEL SPECIFIED OR TO RETEMPER CONCRETE WHICH HAS EXPERIENCED SLUMP LOSS DUE TO EXCESSIVE MIXING OR HEAT BUILD-UP IS NOT
- 6. CONCRETE SHALL BE HANDLED, PLACED, AND CONSOLIDATED IN ACCORDANCE WITH THE REQUIREMENTS
- OF THE SPECIFICATIONS.
- 7. SEE SPECIFICATIONS FOR CURING AND HOT AND COLD WEATHER REQUIREMENTS FOR CONCRETE. PROVIDE PRE-MOLDED EXPANSION-JOINT FILLER AT EDGES OF SLABS ON GRADE AGAINST VERTICAL SURFACES UNLESS NOTED OTHERWISE.
- 9. DOWELS FROM FOOTINGS SHALL BE ACCURATELY LOCATED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF THE CONCRETE. PLACEMENT OF DOWELS IN FRESH CONCRETE AFTER THE CONCRETE HAS BEEN PLACED WILL NOT BE PERMITTED. USE TEMPLATES FOR THE PLACEMENT OF DOWELS IN COLUMNS AND SHEAR WALLS.

- 10. THE CONTRACTOR SHALL USE INSTRUMENTS TO MAINTAIN A CONTINUOUS CHECK OF THE ELEVATIONS OF THE TOP SURFACES OF SLABS DURING THE PLACEMENT AND FINISHING OF THE CONCRETE. ADJUSTMENTS SHALL BE MADE TO MAINTAIN THE SURFACES WITHIN THE SPECIFIED TOLERANCES.
- 11. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL ANCHOR BOLTS, CLIPS, INSERTS, SLEEVES AND OTHER REQUIRED ITEMS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND IN COOPERATION WITH OTHER TRADES PRIOR TO THE PLACING OF CONCRETE.
- 12. CONCRETE FORMWORK SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED SUFFICIENT STRENGTH TO NOT BE DAMAGED BY FORMWORK REMOVAL. SEE ALSO SPECIFICATIONS.

#### REINFORCING STEEL

- 1. DETAILING, FABRICATION, STORAGE, AND INSTALLATION OF REINFORCING, UNLESS OTHERWISE SHOWN ON THE PLANS, SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315), BOTH BY THE AMERICAN CONCRETE INSTITUTE
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. REINFORCING STEEL WELDED TO EMBED STEEL PLATES OR SHAPES SHALL CONFORM TO ASTM A706. DO NOT WELD REINFORCING BARS TO EACH
- 3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- 4. UNLESS NOTED OTHERWISE ON PLANS OR IN DETAILS, REINFORCING BARS MARKED ON THE PLANS AS BEING CONTINUOUS SHALL BE LAPPED AT SPLICE LOCATIONS AS SHOWN IN SCHEDULE. FOR SPLICES AT CORNERS OR INTERSECTIONS OF WALLS AND BEAMS, SEE TYPICAL DETAILS.
- REINFORCING STEEL SHALL BE CLEAN OF MUD, DEBRIS, LOOSE RUST, CEMENT GROUT, OR ANY OTHER MATERIAL WHICH MAY INHIBIT BOND BETWEEN THE STEEL AND THE CONCRETE.
- REINFORCING SHALL BE SECURELY TIED AND ANCHORED IN PLACE BEFORE CONCRETE PLACEMENT, TO PREVENT DISLOCATION.
- 7. UNLESS OTHERWISE NOTED, CONCRETE COVERAGE ON REINFORCING STEEL SHALL BE AS FOLLOWS: **FOOTINGS - ALL FACES** SLAB-ON-GRADE - TOP
- SLAB-ON-GRADE BOTTOM 8. BARS SHALL BE BENT ONLY USING APPROVED METHODS. BARS SHALL NOT BE BENT AFTER PARTIAL EMBEDMENT IN HARDENED CONCRETE.

#### REINFORCED CONCRETE MASONRY

- 1. DETAILS FOR MASONRY CONSTRUCTION ON THE STRUCTURAL DRAWINGS ARE LIMITED IN SCOPE TO SHOW STRUCTURAL REQUIREMENTS ONLY. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS OF MASONRY CONSTRUCTION INCLUDING UNIT TYPES AND SIZES; PLACING PATTERNS; JOINT REINFORCING: VENEER TIES: CONTROL, ISOLATION, AND EXPANSION JOINTS: INSULATION: DAMPPROOFING; ETC. SEE DRAWINGS OF OTHER TRADES FOR OPENINGS AND OTHER SPECIAL REQUIREMENTS.
- MASONRY CONSTRUCTION SHALL CONFORM TO ACI 530. CONCRETE MASONRY BLOCK SHALL CONFORM TO ASTM C90. THE PORTLAND CEMENT/LIME MORTAR SHALL CONFORM TO ASTM C270, TYPE-S. GROUT FOR FILLED MASONRY SHALL BE FINE OR COARSE GROUT APPROPRIATELY SELECTED FOR THE WIDTH OF GROUT SPACE PER ACI 530. GROUT SHALL CONFORM TO ASTM C476 WITH A MAXIMUM AGGREGATE SIZE OF 3/8" FOR COARSE GROUT AND A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C1019. THE NET AREA COMPRESSIVE STRENGTH OF MASONRY SHALL
- PROPORTIONING OF ALL MORTAR SHALL BE ONLY BY VOLUME MEASUREMENT, NOT BY SHOVEL COUNT. MORTAR SHALL BE PROPORTIONED USING THE SAME PORTLAND CEMENT, HYDRATED LIME AND FINE AGGREGATE THAT ARE SELECTED AND APPROVED FOR THE ENTIRE PROJECT. MORTAR SHALL BE MIXED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C270, "SPECIFICATION FOR MORTAR FOR UNIT
- SOLID GROUT FILL SHALL BE PROVIDED IN ALL MASONRY BELOW GRADE, IN ALL CAVITIES WITH REINFORCING BARS, IN ALL CAVITIES WITH EMBEDDED OR DRILLED-IN ANCHORS, AND AS INDICATED. GROUT FILL SHALL COMPLETELY AND SOLIDLY FILL REQUIRED SPACES.
- 5. ALL MASONRY CAVITIES WHICH ARE TO BE FILLED WITH GROUT SHALL BE FILLED IN LIFTS NOT EXCEEDING 4'-0". IF NECESSARY TO OBTAIN COMPLETE FILL, LIFT HEIGHT SHALL BE REDUCED. CARE SHALL BE TAKEN WHILE LAYING BLOCK TO PREVENT MORTAR AND OTHER DEBRIS FROM FALLING INTO THE CAVITIES AND PREVENTING THE GROUT FROM COMPLETELY FILLING THE CAVITIES. GROUT SHALL BE CONSOLIDATED AT PLACEMENT AND AGAIN AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
- WHERE REINFORCING IS SPECIFIED TO BE PLACED IN MASONRY CAVITIES, REINFORCING SHALL BE SECURELY TIED IN POSITION AT THE PROPER LOCATION WITHIN THE MASONRY PRIOR TO FILLING WITH GROUT. PROVIDE BAR SUPPORTS AND POSITIONERS AS REQUIRED. INSERTION OF UNSECURED REINFORCEMENT INTO MASONRY CAVITIES OR INTO GROUT FILL SHALL NOT BE PERMITTED.
- 7. SEE MISCELLANEOUS LINTEL SCHEDULE FOR REQUIRED LINTELS IN MASONRY WALLS NOT OTHERWISE SHOWN ON DRAWINGS.
- ALL CONCRETE MASONRY SHALL BE REINFORCED WITH THE MINIMUM REINFORCING SHOWN IN THE TYPICAL CONCRETE MASONRY REINFORCING DETAIL, UNLESS NOTED OTHERWISE.
- 9. PROVIDE BRACING AT TOP OF ALL MASONRY WALLS. SEE TYPICAL DETAILS.

#### STRUCTURAL STEEL

- ROLLED STEEL W-SHAPES SHALL CONFORM TO ASTM A992, GRADE 50, FY=50 KSI. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE-E, GRADE-B, FY=35 KSI. COLD FORMED STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE-B, FY=46 KSI. ALL OTHER ROLLED STEEL SHAPES, PLATES, AND BARS, SHALL CONFORM TO ASTM A36, FY=36 KSI. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 36.
- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS, COMMENTARY, AND CODE OF STANDARD OF PRACTICE.
- CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR AND APPROVED BY THE DESIGNER. CONNECTION DESIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE AND "AISC SEISMIC PROVISIONS FOR STURCTURAL STEEL BUILDINGS, AISC 341-05 & AISC 341S1-05".

- A. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH AWS D1.1 STRUCTURAL WELDING CODE STEEL BY THE AMERICAN WELDING SOCIETY FOR THE MATERIAL BEING WELDED. WELDS SHALL BE MADE USING E70XX LOW-HYDROGEN ELECTRODES UNLESS OTHERWISE NOTED.
- B. GALVANIZED STEEL SHALL BE WELDED IN ACCORDANCE WITH AWS D19 WELDING ZINC COATED STEEL BY THE AMERICAN WELDING SOCIETY. STEEL SURFACES SHALL BE FREE OF ZINC IN THE AREA
- C. WELDS SHALL BE MADE BY WELDERS WHO HAVE BEEN QUALIFIED BY TESTS AS PRESCRIBED IN AWS D1.1 BY THE AMERICAN WELDING SOCIETY, TO PERFORM THE TYPE OF WORK REQUIRED.
- D. ALL SHOP WELDS SHALL BE A MINIMUM 3/16" AND ALL FIELD WELDS SHALL BE A MINIMUM 1/4", UNLESS NOTED OTHERWISE. INDICATED WELDING OF CONNECTED PARTS SHALL BE "CONTINUOUS" OR "ALL AROUND" AS APPLICABLE, UNLESS NOTED OTHERWISE.
- E. WELDS SHALL BE CLEANED AND TOUCHED UP WITH THE APPROPRIATE PAINT OR ZINC COATING.
- F. PROVIDE SEAL WELDS ON ALL WELDED STEEL JOINTS EXPOSED TO VIEW, MOISTURE, OR CORROSIVE CONDITIONS WHICH WOULD NOT OTHERWISE BE WELDED FOR STRENGTH.
- BOLTED CONNECTIONS SHALL BE MADE USING HIGH-STRENGTH BOLTS, 3/4" DIAMETER CONFORMING TO ASTM A325N, UNLESS OTHERWISE NOTED ON PLAN. SEE SPECIFICATIONS FOR BOLT TIGHTENING METHODS. 6. SPLICES FOR ALL STEEL MEMBERS NOTED AS "CONTINUOUS" SHALL OCCUR OVER SUPPORTING MEMBERS.
- PROVIDE ADEQUATE SEPARATION BETWEEN STRUCTURAL STEEL AND ALUMINUM AND OTHER DISSIMILAR METALS TO PREVENT GALVANIC CORROSION. SEPARATION MATERIALS SHALL BE ADEQUATE TO
- 8. ALL STEEL WHICH IS PERMANENTLY EXPOSED TO NORMAL VIEW BY PEDESTRIANS OR OCCUPANTS SHALL BE CLASSIFIED AS ARCHITECTURALLY EXPOSED STRUCTRUAL STEEL (AESS) AS DEFINED BY THE AISC CODE OF STANDARD PRACTICE.

#### SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS.

GALVANIZING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS:

#### AMERICAN GALVANIZERS ASSOCIATION:

SUGGESTED SPECIFICATION FOR HOT DIP GALVANIZING

AMERICAN SOCIETY FOR TESTING AND MATERIALS:

ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS ASTM A 153 ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE

2. ALL STRUCTURAL STEEL MATERIALS AND ACCESSORIES WHICH ARE HOT-DIP GALVANIZED SHALL MEET SPECIFIED SPECIAL MATERIAL REQUIREMENTS.

#### THE FOLLOWING ITEMS SHALL BE GALVANIZED

- A. ALL STEEL MATERIAL THAT EITHER SUPPORTS OR IS BUILT INTO EXTERIOR EXPOSED MASONRY CONSTRUCTION, IS OUTSIDE THE BUILDING THERMAL AND MOISTURE BARRIERS, OR IS EXPOSED TO EXTERIOR WEATHER CONDITIONS.
- B. ALL CONNECTION MATERIALS FOR GALVANIZED MEMBERS AND FOR PRECAST CONCRETE CONNECTION MATERIALS SHALL INCLUDE, BUT NOT BE LIMITED TO, NUTS, BOLTS, WASHERS, ANCHOR BOLTS, AND ITEMS EMBEDDED IN CONCRETE.
- C. ITEMS NOTED ON DRAWINGS TO BE GALVANIZED.
- 4. GALVANIZED STEEL SHALL BE WELDED IN ACCORDANCE WITH AWS D19 WELDING ZINC COATED STEEL BY THE AMERICAN WELDING SOCIETY. STEEL SURFACES SHALL BE FREE OF ZINC IN THE AREA TO BE WELDED.
- AFTER GALVANIZED MATERIALS ARE INSTALLED, REPAIR DAMAGE AND EXTEND GALVANIZIED COATING WITH SPECIFIED ZINC TOUCH-UP MATERIAL TO PROVIDE THE FULL SPECIFIED EXTENT OF ZINC COATING
- GALVANIZED COATING SHALL BE REPAIRED BY CLEANING SURFACE, POWER DISC SANDING TO BRIGHT METAL, AND APPLYING AN ORGANIC COLD GALVANIZING COMPOUND WITH A MINIMUM OF 94% ZINC DUST IN THE DRY FILM, 8 MILS MINIMUM DFT, THREE COATS MINIMUM.

#### STEEL BAR JOISTS

- BAR JOISTS SHALL BE OPEN WEB STEEL TYPE CONFORMING TO AND INSTALLED ACCORDING TO ALL APPLICABLE REQUIREMENTS OF THE STEEL JOIST INSTITUTE'S "STANDARD SPECIFICATIONS LOAD TABLES AND WEIGHT TABLE FOR STEEL JOISTS (K-SERIES, LH-SERIES, DLH-SERIES) AND JOIST GIRDERS" AS APPLICABLE UNLESS SPECIFICALLY INDICATED OTHERWISE IN THE CONTRACT DOCUMENTS.
- 2. PROVIDE ERECTION STABILITY BOLTING TO COLUMNS AS REQUIRED BY SJI.
- PROVIDE BRIDGING AS REQUIRED BY SJI AND AS INDICATED ON PLAN AND/OR PLAN NOTES. ALL ERECTION STABILITY BRIDGING SHALL BE INSTALLED BEFORE SLACKENING OF THE HOIST LINES. ALL BRIDGING AND OTHER JOIST BRACING MEMBERS SHALL BE INSTALLED AS SOON AS JOISTS HAVE BEEN ERECTED AND BEFORE APPLICATION OF ANY OTHER CONSTRUCTION MATERIALS OR LOADS.
- 4. JOISTS SHALL HAVE EACH END WELDED TO SUPPORTS WITH NOT LESS THAN 1/8"x1-1/2" LONG FILLET WELDS ON EACH SIDE OF K-SERIES JOISTS AND NOT LESS THAN 1/4"X2" LONG FILLET WELDS ON EACH SIDE OF LH-SERIES JOISTS, DLH SERIES JOISTS, AND FOR JOIST GIRDERS.
- 5. SEE FRAMING PLAN NOTES FOR FURTHER REQUIREMENTS.

#### ROOF DECK:

- A. UNLESS OTHERWISE NOTED, ROOF DECK SHALL BE 1-1/2", 22 GA., TYPE-B, WIDE RIB. ALL ROOF DECK SHALL BE GALVANIZED. SEE ROOF DECK PLAN AND TYPICAL ROOF DECK FASTENER LAYOUT FOR DECK ATTACHMENT.
- B. SEE ALL TYPICAL DETAILS SHOWING CONSTRUCTION RELATED TO ROOF DECKING INCLUDING THOSE INDICATED BELOW:
- "ROOF DECK FASTENER LAYOUT"
- C. WHEREVER POSSIBLE, DECK SHALL BE CONTINUOUS OVER A MINIMUM OF 3 SPANS.
- D. ALL EDGES OF ROOF DECK SHALL BE CONTINUOUSLY SUPPORTED, INSTALL MISCELLANEOUS STEEL
- E. COORDINATE WITH RELATED DRAWINGS THE SIZE AND LOCATION OF ANY OPENINGS REQUIRED THROUGH ROOF DECK, WHETHER SHOWN ON THE STRUCTURAL PLAN OR NOT. FRAME ALL OPENINGS GREATER THAN 6", INCLUDING ROOF DRAINS, WITH ANGLE FRAME. SEE TYPICAL DETAIL.

#### ADHESIVE ANCHOR INSTALLATION NOTES

- THREADED RODS SHALL BE ASTM A193, GRADE B7, UNLESS NOTED OTHERWISE.
- ALL SURFACES WHICH WILL CONTACT ADHESIVE SHALL BE CLEAN AND FREE OF OIL OR GREASE.
- 3. ACCURATELY MARK THE SURFACE THAT WILL RECEIVE THE NEW ANCHORS WITH THE LOCATION SHOWN IN THE CONNECTION DETAIL.
- 4. DRILL HOLES USING EQUIPMENT AND PROCEDURES SPECIFIED BY THE ADHESIVE MANUFACTURER. HOLES SHALL BE DRILLED AT A 90 DEGREE ANGLE FROM FACE OF THE MEMBER. 5. HOLES SHALL BE THOROUGHLY CLEANED OF ALL DUST, LOOSE PARTICLES, AND OTHER BOND INHIBITING
- MATERIALS. BLOW HOLES CLEAN USING OIL-FREE COMPRESSED AIR. CLEAN EACH HOLE WITH A BRUSH AND REPEAT CLEANING WITH COMPRESSED AIR.
- 6. STORE, HANDLE, MIX. AND INSTALL ADHESIVE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED SPECIFICATIONS AND INSTRUCTIONS, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
  - A. ANCHORS SET IN SOLID MATERIAL SHALL USE ONE OF THE FOLLOWING ADHESIVE MATERIALS:
  - (1) HILTI HIT RE 500 EPOXY (2) SIMPSON SET EPOXY
  - (3) POWER-FAST+ STANDARD SET EPOXY B. ANCHORS SET IN HOLLOW MATERIAL SHALL USE ONE OF THE FOLLOWING ADHESIVE MATERIALS AND
  - THE MANUFACTURER'S CORRESPONDING SCREEN TUBE INSERT: (1) HILTI HIT HY 20
- (2) SIMPSON SET EPOXY
- (3) POWER-FAST+ STANDARD SET EPOXY
- INJECT THE PREPARED ADHESIVE INTO HOLE (OR SCREEN TUBE) PER MANUFACTURER'S INSTRUCTIONS SLOWLY INSERT THE ANCHOR INTO THE HOLE IN ONE CONTINUOUS STROKE WHILE ROTATING ONE FULL REVOLUTION. THE ANCHOR SHALL NOT BE MOVED BACK AND FORTH, AS THIS WILL ENTRAP AIR, AS DOES EXCESSIVE ROTATION. INJECT ADDITIONAL ADHESIVE AS REQUIRED TO FILL VOID AROUND ANCHOR.
- 8. EXCESSIVE HEAT WILL DAMAGE THE ADHESIVE MATERIAL. PROTECT ADHESIVE FROM HEAT OF CUTTING
- DO NOT INSTALL NUTS AND WASHERS ON THREADED ROD ANCHORS UNTIL ADHESIVE IS FULLY CURED PER MANUFACTURER'S INSTRUCTIONS. TORQUE NUT PER THE MANUFACTURER'S INSTRUCTIONS, BUT DO NOT EXCEED THE MAXIMUM RECOMMENDED TORQUE.
- 10. AFTER ADHESIVE HAS FULLY CURED, INSTALL WASHERS AND NUTS ON THREADED ROD ANCHORS AS REQUIRED AND TIGHTEN EACH NUT. DO NOT EXCEED THE MAX. TORQUE SPECIFIED BY THE ADHESIVE MANUFACTURER. ALL NUTS SHALL BE RETORQUED WITHIN 24 TO 72 HOURS AFTER INITIAL TORQUING. DO NOT TORQUE NUTS NOTED TO BE FINGER TIGHT.

## DRAWINGS & COORDINATION

- 1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL ELECTRICAL, AND PLUMBING DRAWINGS, AND DRAWINGS OF OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE WORK OF ALL TRADES IS COORDINATED WITH THE STRUCTURAL
- 2. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS.
- ANYTHING WHICH, IN THE OPINION OF THE CONTRACTOR, APPEARS TO BE DEFICIENCIES, OMISSIONS CONTRADICTIONS OR AMBIGUITIES IN THE PLANS OR SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER. CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE CONSTRUCTION OF THE AFFECTED WORK MAY PROCEED.
- DETAILS ARE MARKED AT THE SPECIFIC LOCATION WHERE THEY APPLY, BUT ALSO INDICATE GENERAL CONSTRUCTION REQUIREMENTS FOR OTHER LOCATIONS WITH SIMILAR CONDITIONS.
- 5. DETAILS NOTED AS "TYPICAL" MAY NOT BE REFERENCED ON THE DRAWINGS. TYPICAL DETAILS APPLY AT ALL LOCATIONS WHERE THE TYPE OF CONSTRUCTION SHOWN IN THE TYPICAL DETAIL OCCURS.









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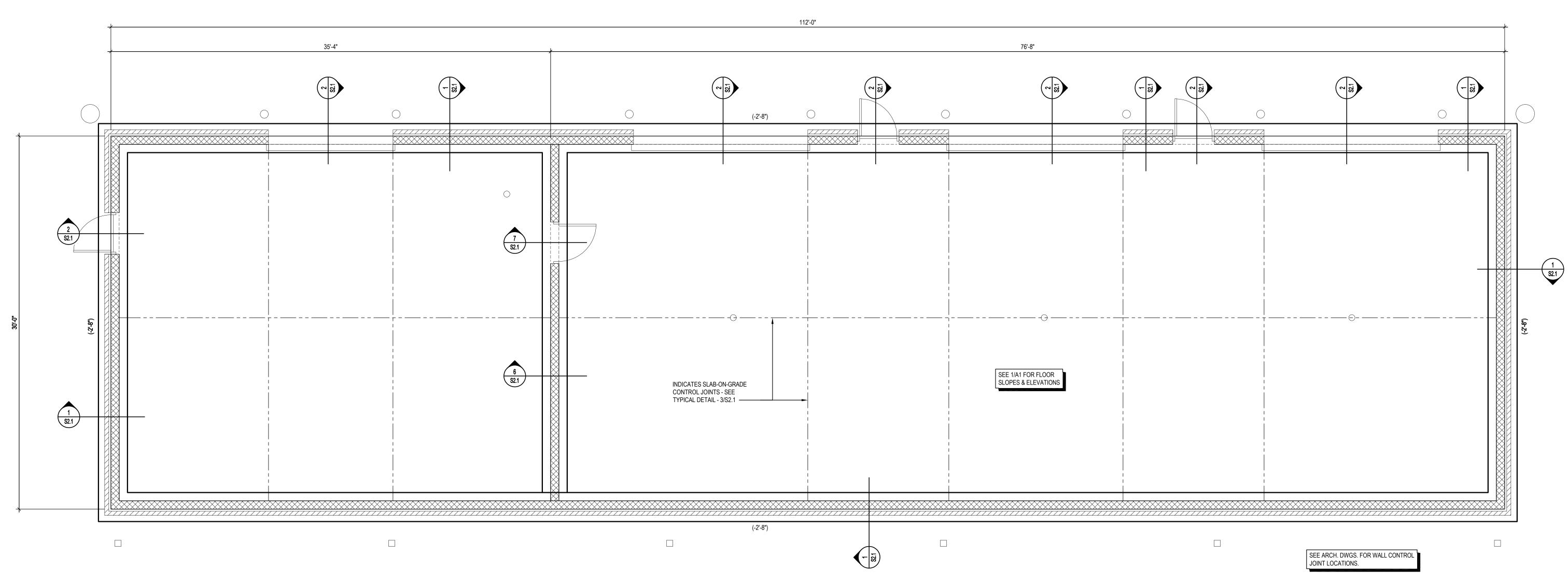
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architectural 90 Church Street, Asheville, NC 28801





### FOUNDATION PLAN 1/4" = 1'-0"

Dwg.# 150535-S2001.DWG

#### FOUNDATION PLAN NOTES

- ELEVATIONS:
- A. THE REFERENCE ELEVATION (0'-0") FOR ALL ELEVATIONS SHOWN ON THE FOUNDATION PLANS SHALL BE AT THE TOP OF THE FLOOR SLAB. SEE SITE PLAN FOR SPECIFIED ELEVATION OF THE FLOOR SLAB.
- B. THE FOLLOWING SYMBOLS ARE USED ON THE FOUNDATION PLANS TO NOTE ELEVATIONS ABOVE (+) OR BELOW (-) THE REFERENCE ELEVATION DEFINED

( ... ) TOP OF FOOTING (-4'-8" TYP.) O'-0" TOP OF SLAB FIELD VERIFY

- 2. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE PADS, DRIVEWAYS, AND SIDEWALKS NOT SHOWN ON THIS DRAWING.
- 3. WALL PROJECTIONS, CHASES, PIERS, AND SIMILAR DETAIL ITEMS MAY NOT BE SHOWN; SEE ARCHITECTURAL DRAWINGS FOR THESE ITEMS.
- 4. FOOTING ELEVATIONS SHOWN ON PLAN ARE FOR ESTIMATING PURPOSES AND MAY BE VARIED TO SUIT SITE, SOIL, OR UNDERGROUND UTILITY CONDITIONS AS
- A. THE TOP OF ALL EXTERIOR FOOTINGS ARE TO BE A MINIMUM OF 2'-0" BELOW THE FINISH GRADE, COORDINATE WITH SITE PLAN. IN NO CASE SHALL TOP OF FOOTING ELEVATIONS BE HIGHER THAN INDICATED ON PLAN. PRIOR TO CONSTRUCTION, NOTIFY THE ENGINEER OF ALL FOOTING ELEVATIONS THAT VARY FROM THOSE SHOWN ON THE PLAN.
- B. COORDINATE FOOTING ELEVATIONS WITH UNDERGROUND UTILITIES. UNDERGROUND UTILITIES WHICH CROSS WALL FOOTINGS SHALL CROSS AT AN ANGLE OF NO MORE THAN 45 DEGRESS FROM PERPENDICULAR. UNLESS OTHERWISE SHOWN OR APPROVED BY THE DESIGNER, THE MINIMUM CLEARANCE OF UNDERGROUND PIPES AND UTILITIES WHICH CROSS BELOW WALL FOOTINGS SHALL BE 8", OTHERWISE THE FOOTING SHALL BE STEPPED DOWN SO THAT THE PIPES MAY PASS ABOVE THE FOOTING AND THROUGH THE WALL. ANY PIPES WHICH MUST PASS UNDERNEATH A WALL FOOTING ARE TO BE INSTALLED PRIOR TO THE CONSTRUCTION OF THE FOOTING AND THE TRENCH BACKFILLED AND COMPACTED AS REQUIRED.
- C. UNLESS OTHERWISE APPROVED BY THE DESIGNER, NO EXCAVATION SHALL OCCUR BELOW A SPREAD FOOTING WITHIN A ZONE DEFINED BY A PLANE SLOPING DOWNWARD AT A 1:1 SLOPE FROM THE BOTTOM EDGES OF THE FOOTING ON ALL SIDES.
- 5. ALL FOOTING REINFORCING SHALL BE SUPPORTED ON THE SPECIFIED CHAIRS ON THE SOIL AND SHALL BE SECURED AGAINST MOVEMENT DURING CONCRETE

#### PLACEMENT.

- 6. IF RAINFALL OR GROUNDWATER INTRUSION IS IMMINENT BEFORE PLACEMENT OF CONCRETE IN FOOTING EXCAVATIONS, A 2" THICK "MUD MAT" OF LEAN CONCRETE SHALL BE PLACED IN THE EXCAVATION AFTER OVEREXCAVATING 2" IN DEPTH. FOR LIGHT PRECIPITATION CONDITIONS, PROTECT BOTTOM AND SIDES OF EXCAVATION WITH TEMPORARY 6 MIL POLYETHYLENE LINING. ANY SOIL WHICH IS SOFTENED DUE TO MOISTURE EXPOSURE SHALL BE UNDERCUT TO FIRM SOIL AND THE DEPTH OF THE FOOTING SHALL BE INCREASED TO REPLACE THE SOFT SOIL THAT WAS
- 7. UNLESS OTHERWISE NOTED, THE CONCRETE SLAB-ON-GRADE SHALL COMPLY WITH THE FOLLOWING:

THICKNESS:

REINFORCING: #3 @ 14" O/C E.W. 1" CLR. FROM TOP. VAPOR BARRIER: SEE ARCHITECTURAL SPECIFICATIONS STONE BASE: SEE GEOTECHNICAL REPORT

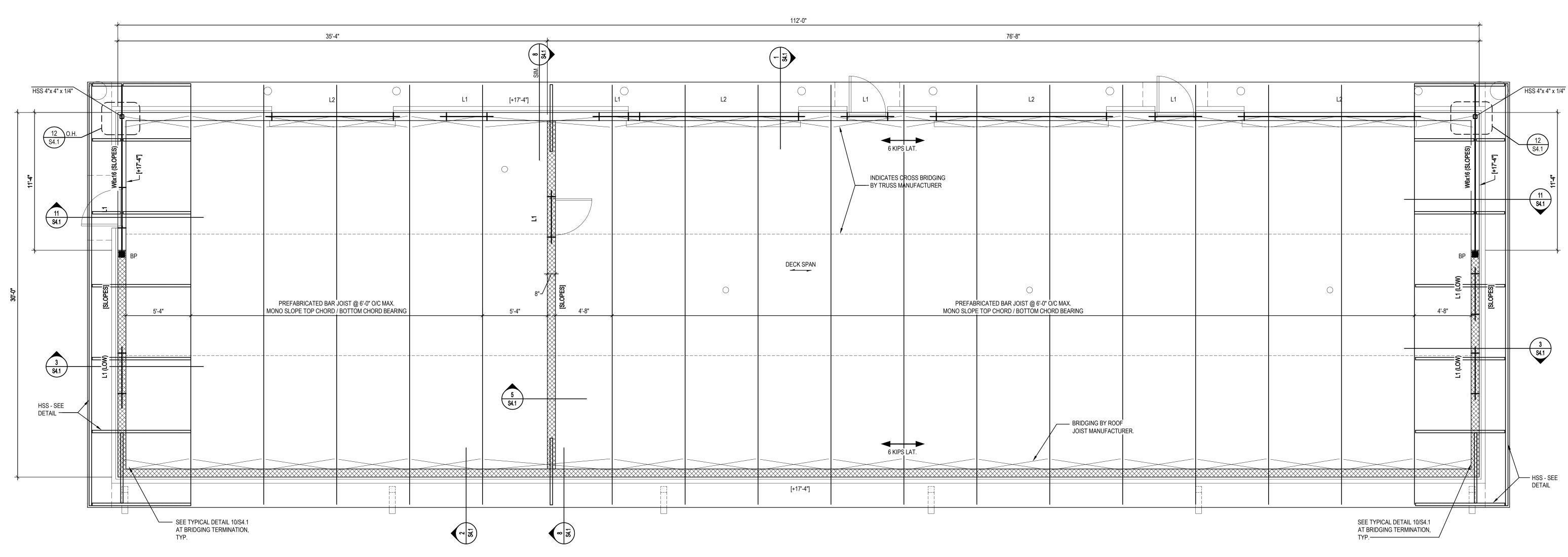
- 8. SLAB ON GRADE CONTROL JOINTS:
- A. SLAB CONSTRUCTION JOINTS SHALL BE LOCATED AT INDICATED CONTROL
- JOINT LOCATIONS. ALL CONSTRUCTION JOINTS SHALL HAVE DOWELS. B. COORDINATE ALL SLAB JOINT LOCATIONS WITH JOINTS IN ARCHITECTURAL
- FLOOR FINISHES TO ASSURE THAT ALIGNMENT IS APPLICABLE. 9. SLAB DEPRESSIONS: DEPRESSED AREAS ARE SHOWN ON THE PLAN FOR ESTIMATING PURPOSES ONLY. LOCATIONS AND DEPTHS OF ALL SLAB DEPRESSIONS SHALL BE DETERMINED IN ACCORDANCE WITH ARCHITECTURAL
- DRAWINGS. 10. SLAB SLOPES: SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FLOOR DRAINS AND SLOPED SLAB AREAS. SLOPE SURFACE UNIFORMLY TO DRAIN. SLOPED SLABS WHICH POND WATER SHALL BE REPLACED.













ROOF FRAMING PLAN

#### **ROOF FRAMING PLAN NOTES** ELEVATIONS:

A. THE REFERENCE ELEVATION (0'-0") FOR ALL ELEVATIONS SHOWN ON THE FLOOR PLANS SHALL BE THE TOP OF THE MAIN LEVEL FLOOR SLAB. SEE SITE PLAN FOR SPECIFIED ELEVATION OF MAIN LEVEL FLOOR SLAB.

- B. SEE ARCHITECTURAL DRAWING FOR TOP OF WALL / ROOF BEARING ELEVATIONS NOT INDICATED ON STRUCTURAL PLANS.
- C. THE FOLLOWING SYMBOLS ARE USED ON THE FLOOR PLANS TO NOTE ELEVATIONS ABOVE THE REFERENCE ELEVATION DEFINED ABOVE.
- SPAN DIRECTION ROOF DECKING
- LX.... LINTEL SEE LINTEL SCHEDULE SHEET S1.2
- [X'-X"] INDICATES TOP OF WALL / RAFTER / TRUSS BEARING SEE ARCH. DWGS FOR ELEVATIONS NOT SHOWN.
- BP STEEL BEARING PLATE SEE 6/S4.1
- 2. SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPE AND BAR JOIST PROFILE

#### ROOF JOISTS:

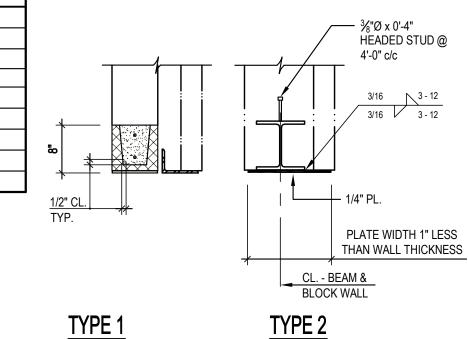
- A. ALL JOISTS SHALL BE DESIGNED FOR THE FOLLOWING LOADS:
- (1) UNIFORMLY DISTRIBUTED GRAVITY LOADS AND DEFLECTIONS AS INDICATED BY JOIST DESIGNATION (16K7)
- (2) 15 PSF NET WIND UPLIFT.
- (3) ADD-LOAD: A CONCENTRATED DEAD LOAD OF 400 [1000 FOR LH] POUNDS IN ADDITION TO UNIFORM LOADS THAT MAY BE APPLIED TO ANY TOP OR BOTTOM CHORD PANEL POINT.
- (4) BEND-CHECK LOAD: CHORD MEMBERS SHALL BE CAPABLE OF SUPPORTING A CONCENTRATED LOAD OF 300 POUNDS THAT MAY BE APPLIED AT ANY TOP OR BOTTOM CHORD LOCATION ALONG THE JOIST. THIS LOAD IS NOT IN ADDITION TO THE SPECIFIED UNIFORM LOADS.

#### B. JOIST BRIDGING:

- (1) PROVIDE HORIZONTAL BRIDGING FOR ALL STEEL JOISTS IN ACCORDANCE WITH SJI AND AS REQUIRED FOR WIND UPLIFT. BRIDGING SHALL BE EQUALLY SPACED ALONG THE SPAN OF THE JOIST.
- 4. WHERE BRIDGING ROWS CONFLICT WITH PIPING, DUCTS, OTHER SUCH OBSTRUCTIONS, REPLACE SINGLE LINE OF BRIDGING WITH TWO LINES ON EACH SIDE OF THE OBSTRUCTION. ALSO, TERMINATE THE INTERRUPTED HORIZONTAL BRIDGING ON EACH SIDE OF THE OBSTRUCTION WITH CROSS BRIDGING.

MARK	TYPE	MASONRY		STEEL	REMARKS
VIARN	IIFE	SIZE	BARS	SIEEL	REWARKS
L1	1	8"	2-#4 CONT.	L - 7" x 4" x 3/8" LLH H.D.G.	
L2	2			W16x26 W/ 1/4" BOTT. PLATE, H.D.G	

- 1. MECHANICAL / ELECTRICAL / PLUMBING CONTRACTORS SHALL IDENTIFY ALL MECH. OPENINGS IN LOAD BEARING WALLS AND SUPPLY GENERAL CONTRACTOR SIZE AND LOCATION OF OPENINGS PRIOR TO CONSTRUCTION OF WALLS. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL LINTELS. CONTACT STRUCTURAL ENGINEER FOR CLARIFICATION OF LINTEL TYPE IF REQUIRED.
- 2. INSTALL 2 2x6 JACK STUDS AND 1 2x6 ADJACENT FULL HEIGHT STUD EACH END OF LINTEL. AT WALL OPENING GREATER THAN 6'-0".
- 3. INSTALL 3 2x6 JACK STUDS AND 2 2x6 ADJACENT FULL HEIGHT STUD EACH END OF LINTEL. AT WALL OPENING GREATER THAN 8'-0". U.N.O.
- 4. SEE ARCH. DWGS. FOR STEEL ANGLE LINTELS REQUIRED TO SUPPORT STONE VENEER ABOVE WALL
- OPENINGS. 5. MINIMUM MASONRY LINTEL BEARING = 2'-0"
- 6. FILL CELLS OF BLOCK UNDER LINTEL BEARING w/ GROUT FROM FLOOR TO LINTEL BEARING.
- 7. FOR MISC. OPENINGS IN MASONRY WALL UP TO 3'-0", USE LINTEL "L1".



TYPE 1



1. LOCATE JOINTS IN CONCRETE SLAB AS SHOWN ON FOUNDATION PLAN.

2. SLAB JOINT DOWELS:

— SAWCUT JOINT, SEE PLAN FOR

(PROVIDE ADDITIONAL LAYER AS

AT JOINTS NOTED ON PLANS AS

THICKEN SLAB AND ADD DOWEL

DOWELED CONTROL JOINTS,

PER CONSTRUCTION JOINT

- FORMED BREAK, SEE PLAN

SEE PLAN NOTES AND DETAILS

FOR SLAB REINFORCING

· COAT FACE OF CONCRETE

SECTION PLACED FIRST WITH

CURING COMPOUND TO PREVENT

(PROVIDE ADDITIONAL LAYER AS

FOR LOCATION

REQUIRED)

BOND

FOR SLAB REINFORCING

LOCATION

REQUIRED)

**CONTROL JOINT** 

**CONSTRUCTION JOINT** 

PROVIDE 11/4" DEEP x 1/8" WIDE SAWCUT ----

SEE PLAN NOTES FOR SLAB

CUT REINFORCING AT JOINT

NO SAWCUT -

SEE PLAN NOTES FOR

SLAB THICKNESS. —

STEEL DOWEL, CENTERED

IN SLAB AND CENTERED ON

CUT REINFORCING AT JOINT

WALL OPENING W/ STEEL LINTEL

STEEL LINTEL. SEE

— LINTEL BEARING SEE

LINTEL SCHEDULE.

VERTICAL REINFORCING BETWEEN WALL EDGE CONDITIONS (U.N.O.) AT

6" OR 8" CMU WALLS SHALL BE #5 AT 32"O.C.. REINFORCING AT 12" CMU

LINTEL SCHEDULE.

JOINT, SEE NOTE 2

150535-S6008.DWG

SLAB REINF

SEE PLAN

FILL ALL BLOCK CELLS

BELOW GRADE w/ GROUT

SEE OTHER DETAILS FOR

WALL JOINT

SEE ARCH. DWGS.

WALL SHALL BE #6 AT 32"O.C.

ALL ITEMS NOT NOTED.

NOTES

TYPICAL SECTION AT

BOND BEAM REINF. CONT.

THRU CONTROL JOINT. —

SHADED AREAS DENOTE

GROUT FILL CMU. ——

SEE OTHER TYPICAL DETAILS FOR

SLAB AT OPENING.

THICKNESS -

A. PROVIDE 3/4"x 16" SMOOTH ROUND STEEL DOWELS IN SLAB JOINTS SPACED AT 12" O/C DOWELS SHALL BE SAWCUT TO LENGTH.

B. DOWELS SHALL BE SECURELY SUPPORTED DURING CONCRETE PLACEMENT ON CONTINUOUS SLAB BOLSTERS ON EACH SIDE OF THE JOINT. POSITION AND ALIGN DOWELS TO BE PERPENDICULAR TO THE JOINT AND PARALLEL TO THE TOP SLAB SURFACE.

C. AT CONSTRUCTION JOINT, GREASE END OF DOWEL PLACED IN FIRST SECTION OF CONCRETE. AFTER CONCRETE IN FIRST SECTION HAS HARDENED, MOVE DOWEL BACK AND FORTH IN HOLE TO INSURE THAT BOND IS BROKEN. AT DOWELED CONTROL JOINT, GREASE ENTIRE LENGTH OF DOWEL

D. DIAMOND PLATE JOINT KEYS MAY BE USED AS AN ALTERNATIVE TO DOWELS. SUBMIT PRODUCT DATA FOR APPROVAL

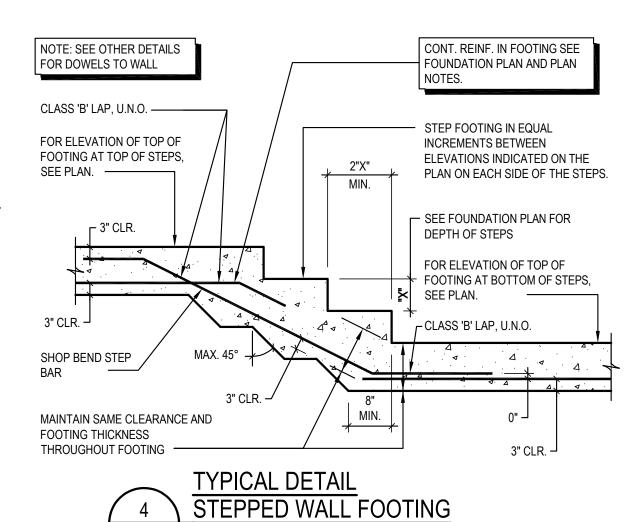
SAW CUTTING:

A. SAWCUT CONTROL JOINTS IMMEDIATELY AFTER COMPLETING SLAB SURFACE FINISHING AT EACH JOINT LOCATION AND AFTER THE CONCRETE IS SUFFICIENTLY SET TO LEAVE NO TRACKS ON THE SURFACE. SAW SHALL BE CAPABLE OF CUTTING OF HARDENED, UNCURED CONCRETE WITHOUT DAMAGING THE CONCRETE.

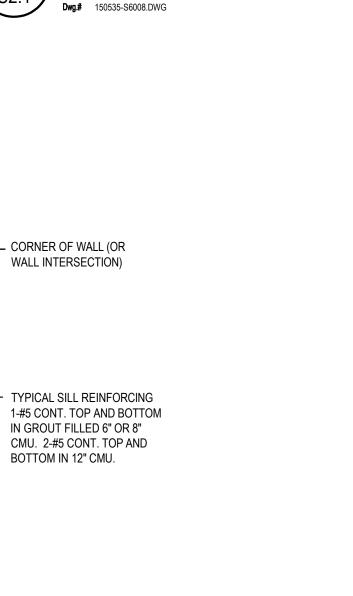
B. SAW CUTS AT CONSTRUCTION JOINTS MAY BE MADE WHEN CONTROL JOINTS ARE CUT OR AT ANY TIME PRIOR TO THE TIME THAT JOINT SEALANTS OR FILLERS ARE TO BE INSTALLED.

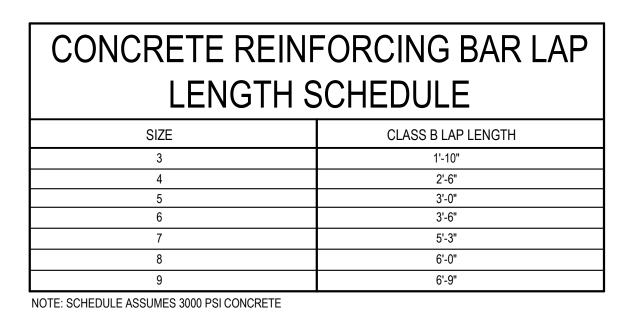
C. IMMEDIATELY AFTER SAWCUTTING, CLEAN THE JOINTS AND SLAB SURFACE. CLEANING SHALL REMOVE ALL LAITANCE, SAW DUST, AND OTHER CONTAMINANTS FROM SLAB SURFACE.

4. AFTER SAWING JOINTS AND CLEANING, COMMENCE CURING OF THE SLAB AND JOINTS AS SPECIFIED.

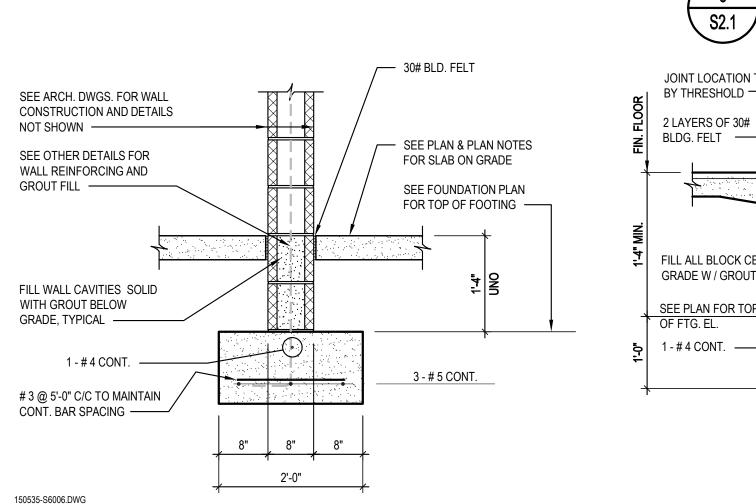


1/2" = 1'-0"









INTERIOR MASONRY WALL FOOTING

JOINT REINF. @ 16" C/C-

WALL REINF. - SEE TYPICAL

4" SOLID C.M.U. -

1 - # 4 CONT. —

EL. - SEE PLAN

TOP OF FTG. REF.

SEE ARCH.

DWGS.

Dwg.# 150534-S6001.DWG

BRACE TOP OF ALL MASONRY WALLS AS SHOWN ON OTHER

OF GREATER SIZE AND/OR CLOSER SPACING, THE REINFORCING

MINIMUM HORIZONTAL JOINT REINFORCING SHALL BE LADDER

TYPE WITH W1.7 WIRES SPACED AT 16"O.C. VERTICAL U.N.O.

TYPICAL DETAIL

**Dwg.#** 150535-S6006.DWG

S2.1

SIZES AND LOCATIONS THROUGH MASONRY WALLS.

REQUIREMENT IN SAID DETAIL SHALL GOVERN.

CONT. BOND BEAM AT TOP OF WALL. PROVIDE STANDARD 90° HOOKS AT VERTICAL BARS AND

CORNER BARS AS REQ'D. SEE NOTES FOR

TOP OF MASONRY. SEE PLAN

CORNER OF WALL (OR WALL

TYPICAL VERTICAL REINFORCING

#5 CENTER IN CMU, LAP 2'-6" (AS

REQ'D.) FILL CELL AT BAR W/

TOP OF SLAB ON GRADE.

TOP OF FOOTING OR

CONCRETE STRUCTURE.

SEE PLAN AND DETAILS.

SEE PLAN AND DETAILS. —

INTERSECTION) \_

AND DETAILS FOR ELEVATION. —

REINF. SIZE.

DETAIL 5/S2.1.

MASONRY FINISH

SEE ARCH. DWGS.—

0" (SIDE BY SIDE)

SLAB REINF. -

SEE PLAN NOTES

BAR SPACING.

3 - # 5 CONT.

W/ MASONRY LINTEL

2. REFER TO DRAWINGS OF OTHER DISCIPLINES FOR ALL OPENING 6. WHERE CONTINUOUS 6" OR 8" BOND BEAMS REQUIRED. PROVIDE

3. WHERE DETAILS SHOWN ON OTHER SHEETS NOTE REINFORCING 7. WHERE CONTINUOUS 12" BOND BEAM REQUIRED PROVIDE (2) #5

MASONRY LINTEL. SEE

5. AT STACKED BOND CONSTRUCTION. PROVIDE CONTINUOUS

(1) #5 BAR TOP AND BOTTOM, U.N.O.

BARS TOP AND BOTTOM, U.N.O.

HORIZONTAL BOND BEAMS AT 4'-0"O.C. MAXIMUM SPACING.

8. PROVIDE CONTINUOUS BOND BEAM AT EVERY 8'-8" HEIGHT OF

WALL FOR WALLS GREATER THAN 12'-0" IN HEIGHT.

LINTEL SCHEDULE.

— FILL ALL BLOCK CELLS

BELOW FIN. FL. W / GROUT

-# 3 BARS @ 5'-0" C/C, MAX.

TO MAINTAIN CONTINUOUS

- FILL BLOCK CELLS w/

GROUT @ REBAR ONLY

WALL BEYOND

SEE OTHER DWGS.

LOCATE JOINT UNDER

DOOR THRESHOLD

( NOT SHOWN ) —

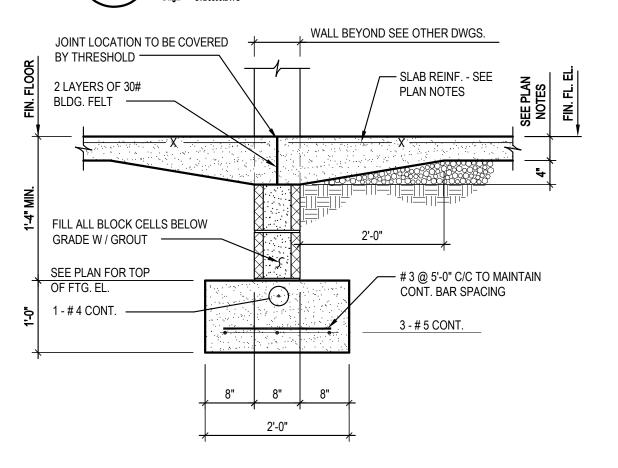
JOINT REINF.

SEE PLAN FOR

TOP OF FTG. EL.

W/ MASONRY

6" CMU -





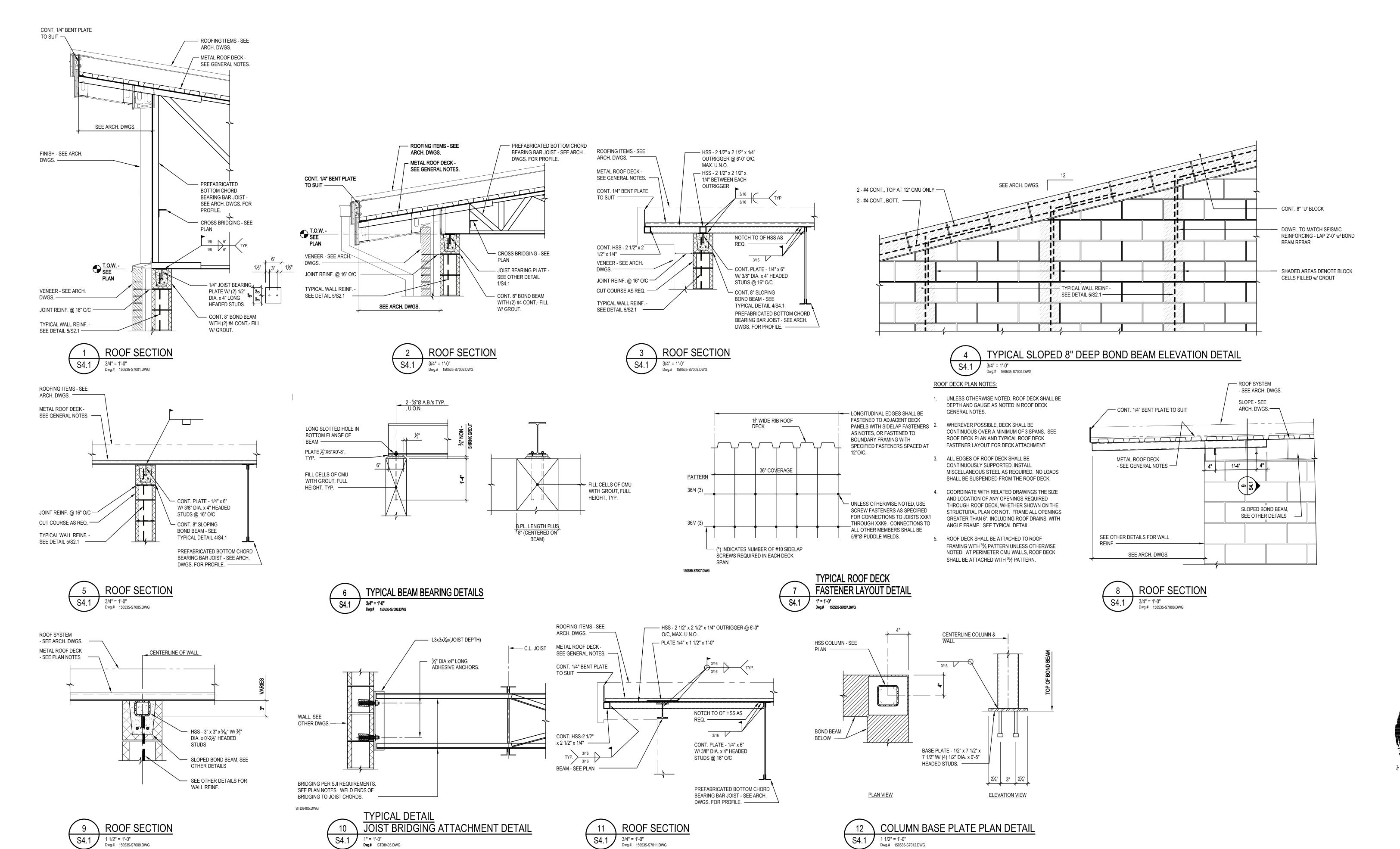




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#### PLUMBING SYSTEMS

#### PLUMBING GENERAL NOTES

- 1. Supply piping shall be located in truss space, unless noted otherwise. All vertical supply, waste, and vent piping shall be located in walls or partitions, unless noted otherwise.
- 2. All piping and equipment shall be cleaned of foreign matter then cleaned—out under pressure before the system is put into operation.
- 3. Pipe testing: The storm drainage and sanitary waste and vent system shall be successfully tested with potable water and shall be proved tight under a water pressure of 10 FT of head for a period of 15 minutes. The domestic water system shall be successfully tested with potable water and proved tight under a water pressure no less than the operating pressure of the system for a minimum of 15 minutes. After the domestic water system has been tested and approved, the entire new system, including valves and accessories, shall be chlorinated. Disinfecting shall be in accordance with AWWA C651. Following disinfection, the water supply shall not be placed into service until bacteriological test results of representative water samples, analyzed in an approved laboratory, are found to be satisfactory. Certification of bacteriological testing for quality of the domestic water shall be conducted by the contractor, accepted by the project engineer and submitted to the state construction office for final inspection and beneficial and final occupancy permit. The fuel gas piping shall be successfully tested with Nitrogen at no less than 1-1/2 times the proposed maximum working pressure, but not less 3 PSIG, irrespective of the design pressure. The test duration shall not be less than  $\frac{1}{2}$  hour for each 500 cubic feet of pipe volume. The test duration shall not be required to exceed 24 hours.
- 4. The Contractor shall keep the premises and points at the building free of rubbish and waste material associated with the installation of the work. Remove from the jobsite any materials not economically recoverable. Any materials removed from the jobsite and sold for salvage shall be credited to the Owner's account.
- 5. All materials used shall be new unless otherwise indicated and shall be furnished in accordance with the standard specification of the American Society for Testing Materials and other industry standard guide specifications.
- 6. All openings in ceilings, walls, floors and plenums for plumbing pipes shall be sealed airtight.
- 7. Cleanouts shall have tops designed for specific floor finishes such as carpet, tile, etc., unless noted otherwise. Cleanouts shall be located not more than 50 feet apart for 3" pipe and not more than 80 feet apart for 4" pipe.
- 8. Verify exact pressure, depth, flow direction, material, connection points, etc., of all existing
- 9. Coordinate locations of all equipment, fixtures and piping where necessary to interface components of plumbing with ductwork, lighting, electrical raceways structural and all other
- 10. Piping runs shall be run high as possible. The contractor shall do all cutting of walls, floors, and ceilings as required for installation of plumbing work. All cutting shall be held to a minimum. Patch and finish surfaces to match adjoining surfaces. The cutting of openings or holes in walls and cutting of holes in floors and ceilings shall be done in a manner, as not to endanger the stability of the structure and any such work shall be coordinated with other
- 11. The project design is based on the first manufacturer indicated on the drawings or the project manual. The Contractor shall bear any costs altering any other contract or subcontract resulting from a substitute of equipment from that specified or on which drawings and specifications are based. When no manufacturer is named, the Contractor may submit any reputable and equal quality manufacturer that meets all codes, criteria and performance requirements of the design documents. If equipment is submitted and accepted with utility connections other than as shown on the drawings and specifications, it shall be the responsibility of the contractor to provide proper utility connections to this equipment at no additional cost.
- 12. Variation from specified fixture appearance will need to be approved through the architect. The plumbing contractor will be required to coordinate acceptance for variation of fixture locations and fixture configurations with the local building authority, the owner, the architect and the general contractor.
- 13. Coordinate with the most up-to-date architectural workings drawings before roughing-in plumbing fixtures.
- 14. The equipment rough—ins as shown are accurate to the best of our knowledge, however, in some instances the owner or supplier may make substitutions or the equipment item may vary from what is shown, therefore the contractor shall verify all critical dimensions prior to construction. Refer to large—scale plans, riser diagrams, and equipment details for vent piping and valving not indicated on the plans. Do not scale drawings. Reference Architectural drawings for final locations of doors, windows, walls, etc.
- 15. Contractor shall consult Architectural and Structural drawings for all dimensions, ceiling heights, beam depths, location of partitions, kind and number of fixtures or pieces of equipment, structural member locations, etc. Failure of the contractor to verify these dimensions shall place the responsibility for any subsequent relocation directly upon the
- 16. The plumbing contractor is to provide instruction to the Owner in the proper operation and maintenance of all equipment and appurtenances provided.
- 17. These engineering drawings are diagrammatic. It is the intention of these drawings to cover all work and material for a complete first class installation. Make proper hot and cold water, waste, vent, etc. piping connections to all fixtures and equipment, although all fittings and connections are not shown. The plumbing contractor is responsible for providing pipe escutcheons, dielectric unions, drip pans, pipe labels, valve tags, anchors, supports, seals, sleeves, sleeve seals, etc. in quantities adequate to satisfy the intent of the engineer's documents. Any equipment, plumbing fixture, trim hardware and/or devices usually utilized in this class of work, though not specifically mentioned or shown on these drawings, but which may be necessary for the satisfactory completion of the work (as determined by the architect) shall be furnished and installed by the contractor as part of his total work.
- 18. Plumbing work and plumbing materials shall meet the requirements of the applicable edition of the state plumbing codes. The latest edition of the State Plumbing Building Code is hereby incorporated into and made a part of these documents and the Contractor shall carry out their provisions. Anything contained in these documents that conflicts with the code shall be installed in accordance with the code and such conflicts shall be brought to the attention of the Engineer for clarification.

### QUALITY ASSURANCE

- 1. All materials and equipment shall be installed and completed in a first class workmanlike manner. The Owner reserves the right to reject any damaged equipment and to direct the removal and replacement of any items, which in their opinion does not represent acceptable workmanship. Such removal and replacement shall be done when directed by the Owner and without additional cost to the Owner.
- 2. Plumbing equipment and accessories shall be inspected upon receipt and any damage reported immediately to the carrier and/or manufacturer for warranty services. The Plumbing Contractor shall be responsible to have touch—up or repainted all materials and equipment in his contract with a factory finish if it is observed marred, scratched or defaced at final acceptance of the building by the Owner.
- 3. The Contractor shall guarantee all materials, equipment and workmanship for a period of 12 months after date of final acceptance of building by the Owner's representative, or for 12 months after occupancy of Owner, or their tenants, should occupancy precede acceptance. All guarantee failures shall be corrected or replaced by the Contractor as soon as possible after notification of such failure.
- 4. Furnish the Owner with a complete booklet containing equipment engineering data, operating and maintenance instructions, and control wiring diagrams (indicating control equipment and function). In addition, the Contractor shall instruct Owner and/or their representatives on the proper operation and servicing of the equipment.

#### WATER HEATERS

- 1. The discharge from the relief valve of the water heater shall be piped full—size of the valve outlet pipe size to a point not more than 2" above the flood level of the pan.
- 2. Provide a 3" high (24 ga. min.) galvanized pan for each water heater. Pipe the drain pan to outside the building (or to another receptacle approved by the local authority) and terminate
- 3. The plumbing contractor is responsible for coordinating electrical connection points and changes in the electrical requirements with the electrical contractor.
- 4. The general contractor shall provide and install all structural components required to support the water heater. The plumbing contractor shall provide dimensional requirements to the general contractor as soon as they are available and install all mounting devices supplied by the water heater manufacturer.

#### PLUMBING FIXTURES

1. Water flow limiting devices will be provided on all plumbing fixtures to meet the maximum allowable water usage for plumbing fixtures as indicated below.

#### Janitor's Sink 2.2 gal/min.

#### PIPE MATERIALS AND INSTALLATION

WATER PIPING (INTERIOR) Above Ground:

Type L hard—drawn copper tubing with wrought copper fittings. ASTM B88—78.

#### CPVC after water heater where acceptable by code.

SOIL WASTE, VENT AND STORM Sanitary and Vent: Hubless Cast Iron and fittings with approved clamps. ASTM c564-70 and CISPI 301-78. Schedule 40 PVC where acceptable by code. Above Ground Storm (sanitary alternate): Ductile Iron with Mechanical Joints (AWWA c151, class 51). Joints (ANSI/AWWA c111/a21.11).

### FUEL GAS (ABOVE GROUND 2" AND SMALLER)

Schedule 40 Black Steel pipe ASTM A53

Threaded, 150 pound Malleable Iron ANSI B16.3

- 1. See fixture schedule, floor plans, and symbol legend for pipe sizing information.
- 2. See floor plans for building drain and main water service sizes;
- 3. All piping is sized according to the characteristics of the preferred piping materials. If alternate piping is used then the contractor is responsible for verifying that the velocities are maintained to the original design intent. Provide for allowance for expansion for hot water cpvc.

#### PIPE HANGERS AND SUPPORTS

- 1. Place hangers within 12 inches of each horizontal elbow.
- 2. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
- 3. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
- 4. Provide hangers adjacent to equipment so the equipment does not support any piping.
- 5. Support cast iron drainage piping at every joint.

PIPE HANGER SPACING (Fuel Gas Systems are to be treated no less important than other systems)

PIPE MATERIAL	MAXIMUM HANGER SPACING Feet	HANGER ROD DIAMETER Inches
Cast Iron (All Sizes)	5	5/8
Cast Iron (All Sizes) with length of pipe 10 foot	10	5/8
CPVC,1 inch and smaller	3	1/2
CPVC, 1-1/4 inches and larger	4	1/2
Copper Tube, 1–1/4 inches and smaller	6	1/2
Copper Tube, 1-1/2 inches and larger	10	1/2
Polypropylene	4	3/8
PVC (All Sizes)	4	3/8
Schedule 40 Steel 1/2 inches	6	1/2
Schedule 40 Steel 3/4 inches to 1 inch	8	1/2
Schedule 40 Steel 1-1/4 inches and larger	10	1/2

#### PIPE INSULATION

1. All hot and cold water piping indicated to be run in truss space or in exterior walls shall be installed on the conditioned space side of the building insulation. Insulate all domestic water system pipes above ceilings and on outside walls with R-7 insulation or better.

Water piping shall not be installed in areas subject to freezing conditions. Note: Pipe insulation alone is not considered adequate freeze protection.

- 2. Insulate all domestic hot and cold water system pipes with 1" of 0.24-0.28 conductivity insulation. Insulation shall have a flame spread rating of not more than 25 and a smoke—developed index of not more than 50.
- 3. Provide insulation on all exposed piping under fixtures in accordance with ANSI and ADA gudelines. 4. No water piping shall be installed in unconditioned areas.

#### MAINTAIN PROPER SLOPE FOR INTERIOR AND EXTERIOR PIPE

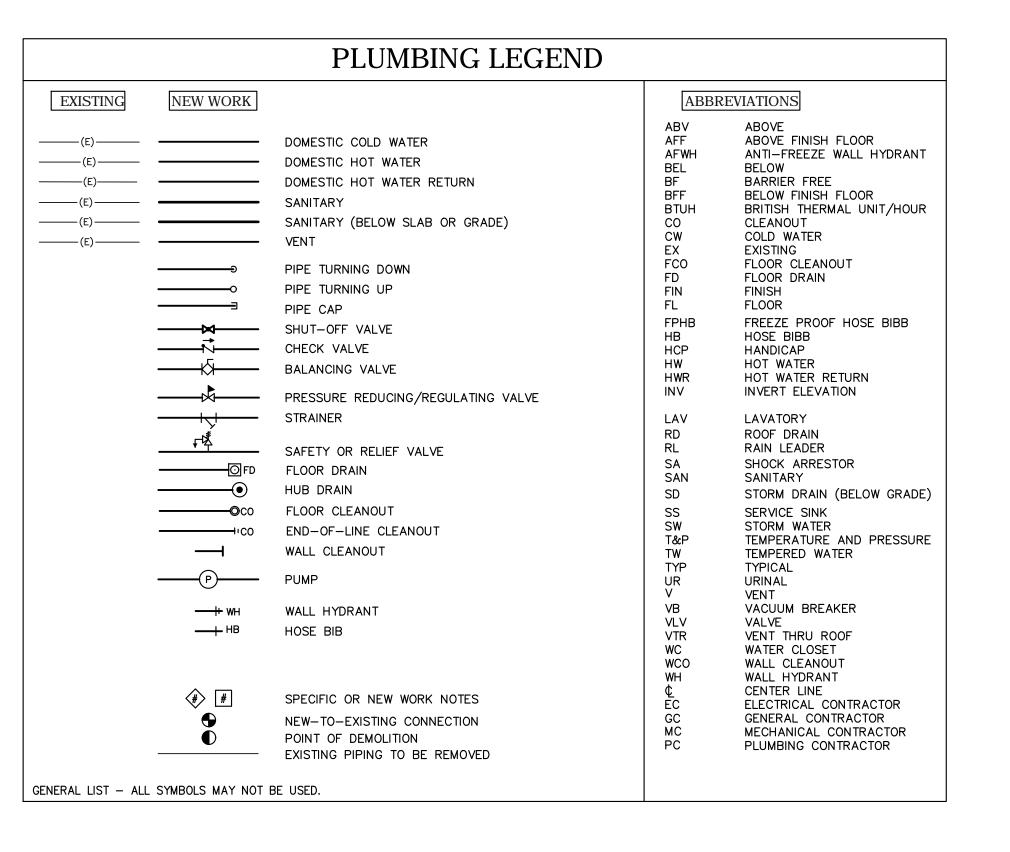
- 1. Slopes and invert elevations of exterior sewers, manholes, etc. shall be established and verified, by the plumbing contractor, before any piping is installed so that proper slopes will be maintained and necessary invert elevations obtained.
- 2. Slopes and invert elevations of all interior pipes shall be established before any piping is installed.
- 3. Sanitary sewer and storm drainage piping less than 4—inch shall be installed with a minimum slope of
- 4. Domestic Hot and Cold water piping shall be sloped for drainage with drain valves installed at low points. Access panels shall be provided at concealed valves, water hammer arrestors and other devices.

#### SEISMIC

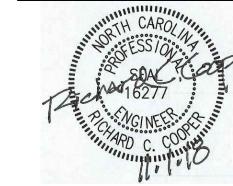
1. The Contractor shall be responsible for providing sway bracing and restraints to resist the earthquake effects on the system in accordance with state and local codes and ordinances. Refer to the designer Building Code Summary of this project for the Seismic Performance Category and Seismic Design Parameters. Where seismic restraints are necessary then the restraints shall be designed and inspected by individuals specifically qualified in structural restraint methods. See specification 22 05 48 for specific requirements.

	PL	UMBING FIXTU	JRE :	SCH	EDU	LE	
MARK	DESCRIPTION	W.	V.	C.W.	H.W.	REMARKS	NOTES
EWS	EMERGENCY EYE WASH/ SHOWER	_	-	1-1/2	1-1/2"	PROVIDED AND INSTALLED BY PC. PROVIDE DRAIN FROM PULLDOWN EYEWASH TO SANITARY SEWER SYSTEM.	1, 2
FD-1	FLOOR DRAIN	3"	2"	_		PROVIDE HEAVY-DUTY ENAMEL-COATED CAST IRON BODY FLOOR DRAIN WITH 8" TYPE B SLOTTED SCREW SECURED POLISHED NICKEL BRONZE STRAINER, ADJUSTABLE COLLAR WITH SEEPAGE SLOTS, SEDIMENT BUCKET, AND CAST IRON P-TRAP. PROVIDE ALL 4" FLOOR DRAINS WITH 12" DEEP SUMP RECEIVER BASIN (REFER TO PLANS FOR LOCATIONS).	
P-1	JANITOR SINK	3"	2"	1/2"	1/2"	SINGLE COMPARTMENT WITH 14 GAUGE TYPE 304 STAINLESS STEEL STAND, 14 GAUGE TYPE 304 STAINLESS STEEL TUB, STANDARD BRUSH FINISH EXTERIOR, POLISHED INTERIOR FINISH. PROVIDE WALL MOUNTED (WITH WALL BLOCKING) FANCETTE SET WITH PAIL HOOK, HOT AND COLD LEVER HANDLES WITH COLOR CODED INDEXES, AND VACUUM BREAKER AND UPPER SUPPORT ROD.	1, 2
WH-1	WATER HEATER	_	-	1/2"	1/2"	NON-CONDENSING NATURAL GAS, 5" CONCENTRIC VENT THROUGH ROOF, 15 YEAR WARRANTY, 190 MBH MAXIMUM INPUT, 3/4" NG CONNECTION, FULLY MODULATING, INTEGRATED TEMPERATURE CONTROLLER. AO SMITH ATI-110C-N IS BASIS OF DESIGN. APPROVED EQUALS BY RINNAI AND RHEEM. MAXIMUM 140 MBH INPUT. MAXIMUM 6.6 GPM.	-
FPHB	FREEZE PROOF HOSE BIB	_	-	3/4"		PROVIDE ANTI-SIPHON VACUUM BREAKER PROTECTED HOSE BIBB INSTALLED WITH WALL BOX AND LOCKABLE COVER, BOTH WITH ROUGH BRASS FINISH.	-
HB-1	HOSE BIBB	-	-	3/4"		PROVIDE ANTI-SIPHON VACUUM BREAKER PROTECTED HOSE BIBB WITH WHEEL HANDLE AND ROUGH BRASS FINISH.	
FC0	FLOOR CLEANOUT	_	-	-		PROVIDE CLEANOUT OF MATERIAL MATCHING THAT OF CONNECTED LINE WITH RECESSED TOP COVER AND ADJUSTABLE HOUSING.	

- ROUGH ACCORDING TO ABOVE SCHEDULE UNLESS OTHERWISE INDICATED.
- REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.

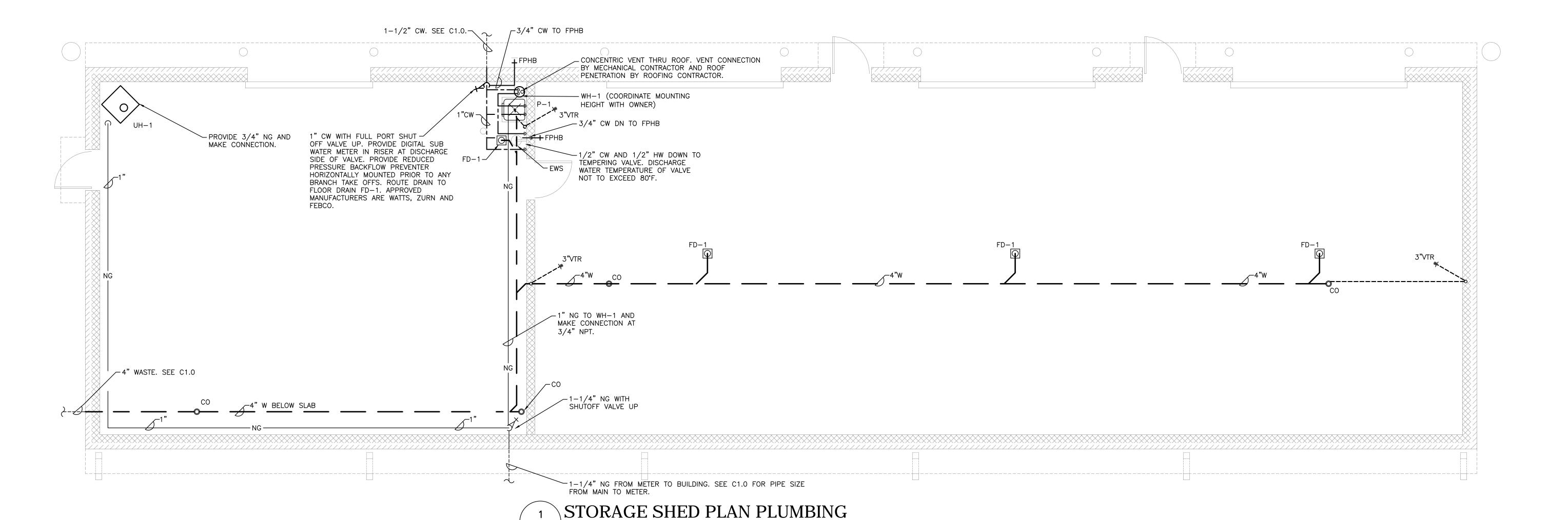






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P1.0 / SCALE : 1/4" = 1'-0"

TYPE "B" GAS VENT THROUGH
ROOF AND TO ROOF CAP BY
MECHANICAL AND ROOF CONTRACTOR 1" NATURAL GAS 3/4" NATURAL GAS PIPING PROVIDED BY PLUMBING CONTRACTOR THREADED ROD TO NEW STRUCTURE GAS COCK-TYPICAL. PROVIDED BY PC \_\_TOP OF UNIT AT 16'-0" A.F.F. MINIMUM 3" DRIP LEG -PROVIDED BY PC 1" NATURAL GAS PIPING, REGULATOR,—

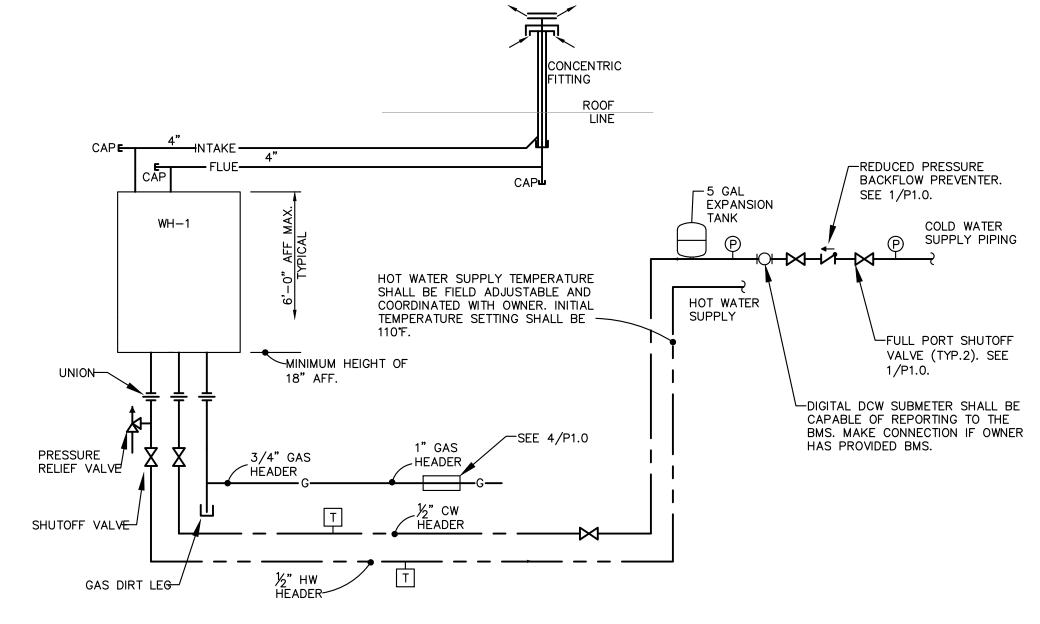
UNION-

AND FINAL CONNECTION PROVIDED BY

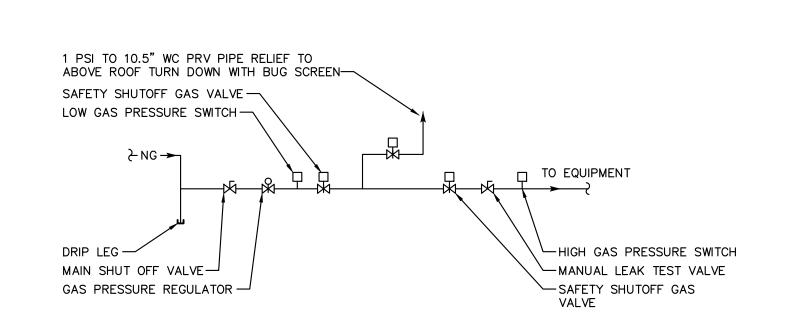
MECHANICAL CONTRACTOR. VENT

REGULATOR TO OUTDOORS.

NG UNIT HEATER DETAIL P1.0 SCALE : NTS

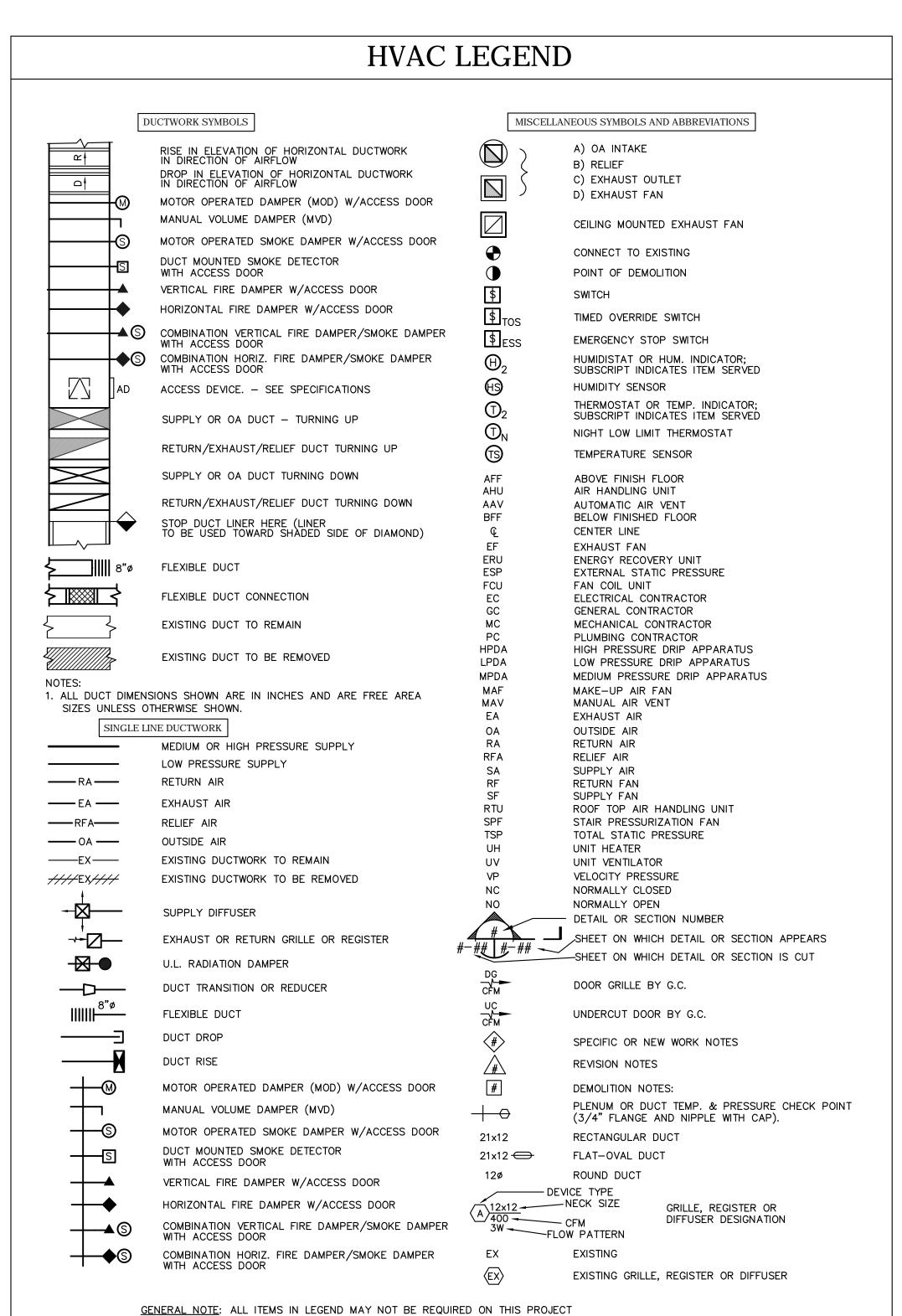


TANKLESS WATER HEATER DETAIL P1.0 | SCALE : NTS



TYPICAL GAS TRAIN- FM APPROVED P1.0 | SCALE : NTS





MECHANICAL SYSTEMS

#### **HVAC GENERAL NOTES**

- 1. The HVAC Contractor is to provide all labor, equipment and materials for a complete heating, air conditioning and exhaust air systems as indicated with the Engineer's design documents.
- This shall include (not limited to) the following:
- A. Exhaust System B. Heating System
- C. Hangers D. Controls
- 2. Do not scale drawings. See architectural drawings and reflected ceiling plan for exact location of doors, windows, ceiling diffusers, etc. Contractor shall consult Architectural, Electrical, Plumbing and Structural drawings for all dimensions, ceiling heights, beam depths, location of partitions, kind and number of fixtures or pieces of equipment, structural member locations, etc.
- 3. Locate all thermostats 48" above the finished floor, unless otherwise noted.
- 4. Anything contained in these documents that conflicts with the code shall be installed in accordance with the code and such conflicts shall be brought to the attention of the Engineer for clarification.
- 5. It is the intention of these drawings to cover all work for a complete first class mechanical installation. Any equipment, trim hardware and/or devices usually utilized in the class of work, though not specifically mentioned or shown on the drawings, but which may be necessary for the satisfactory completion of the work (as determined by the Architect) shall be furnished and installed by the HVAC Contractor as part of his total work.
- 6. The Contractor shall examine the site and be familiarized with all existing conditions as is required to enable him to carry out installation. The Contractor's failure to comply with this requirement will not relieve him of the responsibility of any errors, which might have been avoided by his compliance.
- 7. Contractor shall coordinate his work and the installation of his work with the other Contractors and should any condition arise where the work of this Contractor shall interfere with, or prevent proper and satisfactory installation, the Contractor shall be responsible for working out such problems to allow proper installation. Should such interference involve changes in the plans and/or specifications, the Contractor shall notify the Architect and Engineer in writing before proceeding with changes. Ductwork shall take precedence over any conflicting piping in same area.
- 8. The Contractor shall be responsible for all work damaged by him in executing contract. All work damaged by the Contractor shall be replaced by him and placed in normal working condition without extra cost. Any construction work damaged shall be made acceptable to the Architect, Engineer, and Owner. The Contractor shall, at all times, be responsible for any damaged equipment or work in conjunction with executing the contract The HVAC Contractor shall repair, replace, or repaint to match existing surfaces damaged by the HVAC Contractor during installation of mechanical equipment.
- 9. The cutting of chases, openings or holes in walls and cutting of holes in floors and ceilings shall be done in a manner, as not to endanger the stability of the structure and any such work shall be coordinated with other contractors. All penetrations through fire rated assemblies shall be sealed with a UL listed material that will maintain the integrity of the assembly fire rating.
- 10. The Contractor shall keep the premises and points at the building free of rubbish and waste material associated with the installation of the work. Remove from the jobsite any materials not economically recoverable. Any materials removed from the jobsite and sold for salvage shall be credited to the Owner's account.
- 11. All materials used shall be new unless otherwise shown or called for, and shall be furnished in accordance with the standard specification of the American Society for Testing Materials, the American Society of Mechanical Engineers, and other guide specifications.
- 12. Drawings are based on first manufacturer named on drawings or in specifications. Contractor shall bear any costs altering any other contract or subcontract resulting from a substitute of equipment for that specified or on which drawings and specifications are based. When no manufacturer is named, Contractor may submit any reputable, quality manufacturer that meets all codes, criteria and performance requirements of the design documents.
- 13. The drawings are diagrammatic and shall be followed as closely as possible. However, the contractors shall be responsible to coordinate their installation and work out interference that might occur among themselves. Should interference occur, the Engineer will assist in working them out in the best interests of all contractors concerned and with as little change in the systems as originally planned as possible. The drawings indicate major offsets but by no means indicate all such situations. Should Contractor elect to prefabricate ductwork or piping, he shall do so at the risk of having to make field changes to avoid structure or other trades at his own expense. Owner, Architect, and Engineer shall not be liable for extra expenses involved because of the Contractor's failure to include adequate allowance in his price for such field problems.
- 14. All motor driven equipment under this contract shall operate under continuous maximum demands on the respective systems without objectionable noise or vibration in any portion of the system. The Architect and Engineer shall reject any noisy motor driven equipment.

#### ELECTRICAL WORK

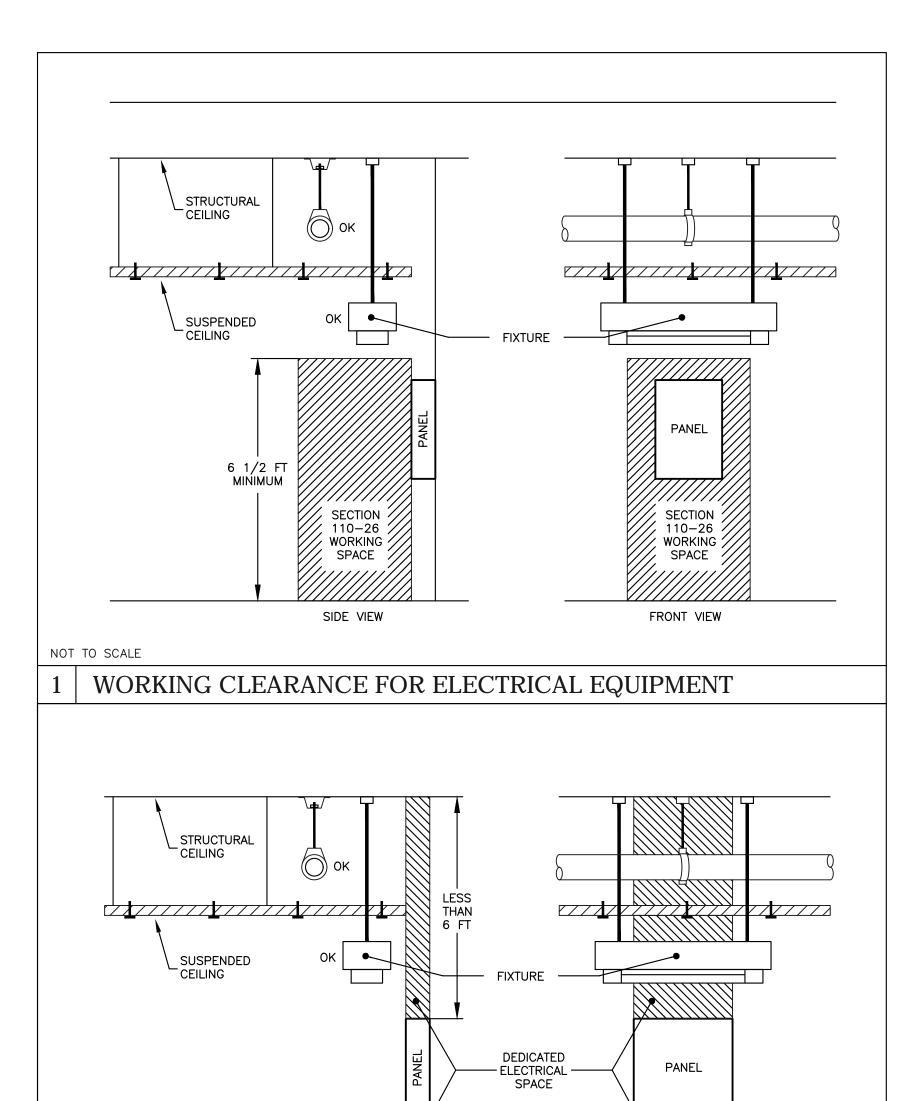
- 1. The HVAC Contractor shall furnish and install all motors, controls, control wiring, contactors and starters for all equipment in this section of work.. Starters and switches shall be best grade Square-D, Westinghouse, G.E. or Allen Bradley rated for motors and conforming to electrical specifications. Provide thermal protection for each motor. Provide only the power wiring specifically called for under each item of equipment. All other power wiring is in the electrical contract. Disconnects not provided by the Electrical Contractor shall be provided by this contractor.
- 2. Electrical work shall be performed by an approved subcontractor qualified and licensed in electrical work. Raceways, conductors and installation requirements shall conform to the requirements of the N.E.C. and the electrical division requirements of this project. Motor connections at motor terminals shall not be made until rotation, horsepower and phase ratings, and ratings of any required thermal heaters have been verified and approved as correct for the installation.
- 3. Motors shall be of sufficient size for the duty to be performed and shall not exceed their full rated load when the driven equipment is operated at specified capacity under the most severe conditions likely to be encountered. Motors shall have continuous duty classification based on 40°C ambient

### QUALITY ASSURANCE

- 1. All materials and equipment shall be installed and completed in a first class workmanlike manner. The Owner reserves the right to reject any damaged equipment and to direct the removal and replacement of any items, which in their opinion, shall not represent acceptable workmanship. Such removal and replacement shall be done when directed by the Owner and without additional cost to the Owner.
- 2. Mechanical equipment and accessories shall be inspected upon receipt and any damage reported immediately to the carrier and/or manufacturer for warranty services. The HVAC Contractor shall be responsible to have touch-up or repainted all materials and equipment in this contract with a factory finish if it is observed marred, scratched or defaced at final acceptance of the building by the Owner.
- 3. The Contractor shall guarantee all materials, equipment and workmanship for a period of 12 months after date of final acceptance of building by the Owner's representative, or for 12 months after occupancy of Owner, or their tenants, should occupancy precede acceptance. All guarantee failures shall be corrected or replaced by the Contractor as soon as possible after notification of such failure.
- 4. Furnish the Owner with a complete booklet containing equipment engineering data, operating and maintenance instructions, control wiring diagrams (indicating control equipment and function). In addition, Contractor shall instruct Owner and/or their representatives on proper operation and servicing of equipment.

#### **EQUIPMENT NOTES**

- 1. All electrical equipment shall bear the UL approved mark.
- 2. All HVAC and refrigeration equipment shall comply with the following standards: ASHRAE; ANSI; NFPA 90A; NFPA 90B; and NFPA 214. Manufacture's instructions shall remain attached to each associated appliance in a position to be easily read. All equipment shall be provided with permanent
- 3. Equipment shall be located so as to allow adequate clearance for maintenance and service. Allow sufficient working area for component removal.

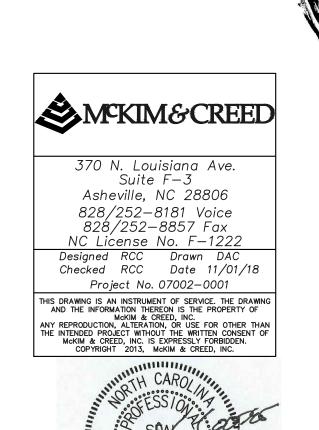


FRONT VIEW

SIDE VIEW

2 DEDICATED SPACE FOR ELECTRICAL EQUIPMENT

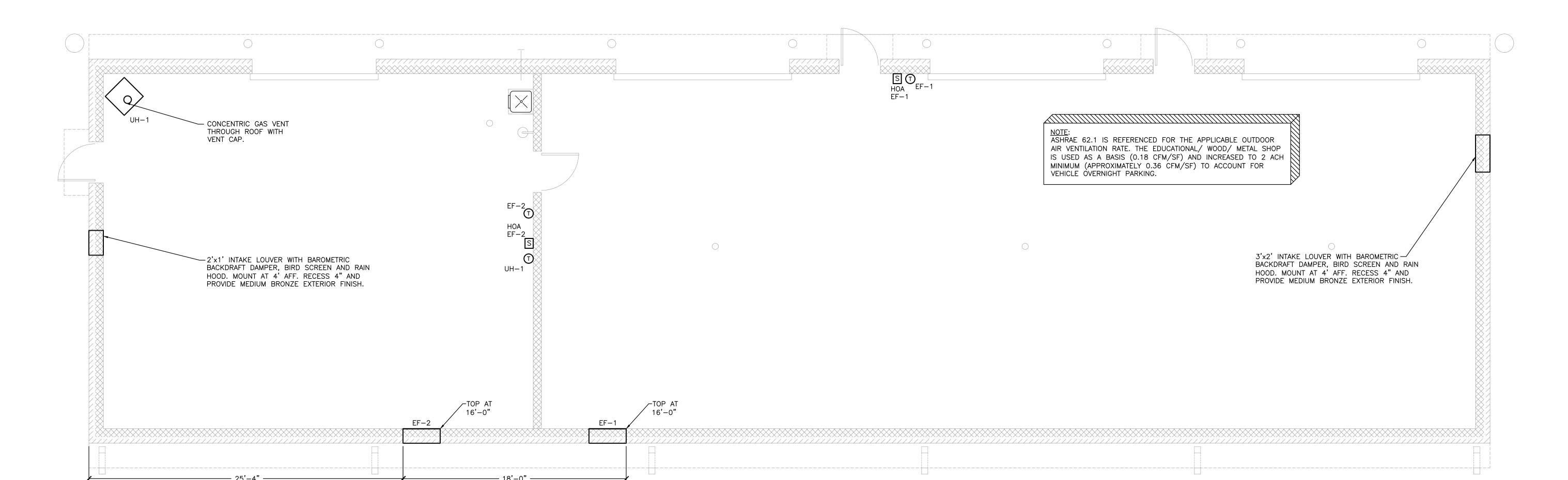
NOT TO SCALE



M0.1

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# STORAGE SHED PLAN HVAC M1.0 | SCALE : 1/4" = 1'-0"

M1.0 | SCALE : NTS

	Ş	SIDEWALL EX	KHAU	JST FA	N SC	HE	DULE	
MARK TYPE	SERVICE	CFM	E.S.P.	ELECTRICAL		MANUFACTURER/	REMARKS	
	IIFL	SERVICE	CIWI	(" W.G.)	VOLTS	Ø	MODEL NO.	(NOTES)
EF-1	SIDEWALL	MAINT. STORAGE	800	0.25"	120	1	COOK XPD-10	1-8, 9
EF-2	SIDEWALL	STORAGE	300	0.25"	).25" 120		COOK XPD-10	1-8

#### NOTES:

1. PROVIDE U.L. LISTED FACTORY INSTALLED DISCONNECT SWITCH.

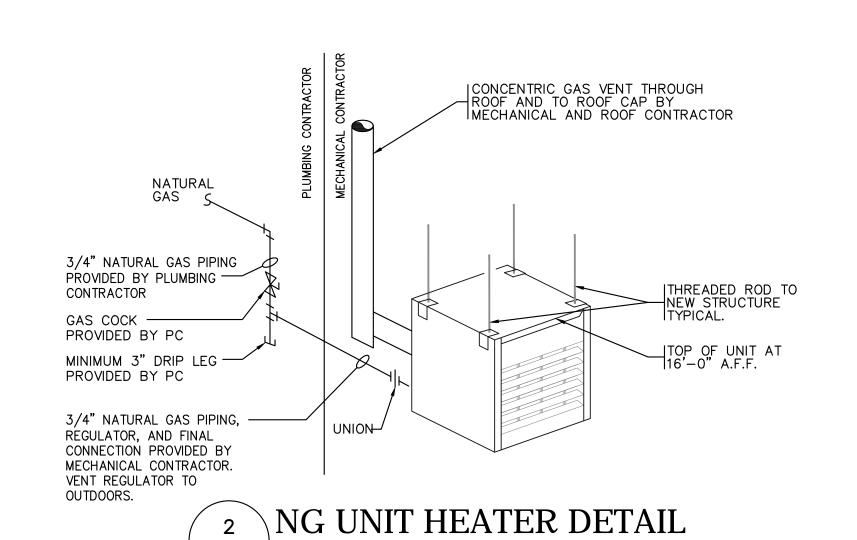
- 2. PROVIDE GRAVITY BACKDRAFT DAMPER
- 3. PROVIDE BIRDSCREEN.
- 4. PROVIDE U.L. LABEL.
- 5. PROVIDE H.O.A. WALL SWITCH, AUTOMATIC MODE CONTROL IS THROUGH THERMOSTAT.
- 6. APPROVED EQUALS BY GREENHECK AND BARRY ARE ACCEPTABLE.
- 7. PROVIDE RAIN HOOD.
- 8. EF-1 AT 1/8 HP AND EF-2 AT 1/20 HP
- 9. CONTROL WITH OCCUPANCY SENSOR AND HOA SWITCH. SEE E1.0.

	NATI	JRAL	GAS	S UI	NIT HI	EAT	ER SCHEDUI	LE				
MARK	CFM	MBH OUTPUT	GPM	HP	MOTOR VOLTS	PH	MANUFACTURER/ MODEL NO.	REMARKS				
UH-1	2870	160	NA	1/4	120	1	MODINE PDP 200	1–5				
NOTES:												
1. P	ROVIDE RE	MOTE THE	ERMOST	AT								
2. 8	0% EFFICE	NCY. NAT	URAL (	GAS.								

3. PROVIDE FM APPROVED NATURAL GAS TRAIN.

4. PROVIDE U.L. LABEL.

5. EQUALS BY STERLING AND TRANE ARE APPROVED.





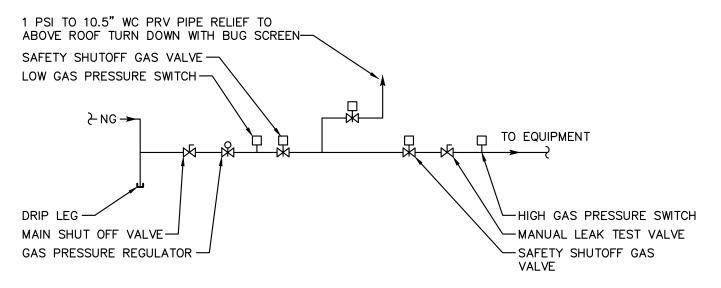
SECURE EXHAUST FAN IN WALL SLEEVE.

ACCESS DOOR -

AIRFLOW — \\_

FAN GUARD -

FAN MOTOR







PROVIDE FACTORY RAIN

BLADES.

- 4" LOUVER WITH DRAINABLE

BAROMETRIC DAMPER WITH INSULATED BLADES AND

DOUBLE SEALED BEARINGS.

-WALL SLEEVE FASTEN IN

& SEALED WATERTIGHT.

WALL IN A SECURE MANNER

STRUCTURAL



M1.0

### ELECTRICAL GENERAL NOTES AND SPECIFICATIONS

- A. ALL WORK SHALL BE IN ACCORDANCE WITH, THE NATIONAL ELECTRICAL CODE, 2014 EDITION AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES. ELECTRICAL CONTRACTOR SHALL SECURE AND PAY FOR ALL LICENSES, FEES, PERMITS, AND UTILITY CHARGES. BOTH CONTRACTOR AND INSTALLING MECHANIC ARE REMINDED THAT SINCE THE NATIONAL ELECTRICAL CODE IS BY STATUTORY INCLUSION A PART OF THE LAWS OF THE STATE THEY BEAR A PRIME RESPONSIBILITY TO COMPLY WITH IT EVEN WHEN THE DRAWINGS OR SPECIFICATIONS DENOTE AN APPARENT VIOLATION. THIS SHOULD BE OBSERVED CAREFULLY AND CONTINUOUSLY, PARTICULARLY DURING ESTIMATING FOR PROPOSAL, AND ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
- B. ELECTRICAL CONTRACTOR SHALL MAINTAIN ON THE SITE AN ADEQUATE ADMINISTRATIVE SPACE WHERE ONE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS SHALL BE KEPT FOR THE WORK OF ALL TRADES ON THE PROJECT. THESE SHALL BE IN ADDITION TO THE SETS USED BY THE MECHANICS IN CARRYING OUT THEIR WORK ON THE PROJECT. THE PROJECTED LOCATION OF EVERY OUTLET, RACEWAY, OR ITEM OF EQUIPMENT TO BE INSTALLED UNDER THIS CONTRACT SHALL BE CHECKED AGAINST THE DRAWINGS AND SPECIFICATIONS OF ALL THE OTHER TRADES AS WELL AS BY DAY-TO-DAY CONFERENCE WITH WORKMEN AND SUPERVISORS OF ALL OTHER TRADES TO THE END THAT ANY CONFLICTS OR UNCERTAINTIES ABOUT LOCATIONS ARE RESOLVED BEFORE WORK IS INSTALLED, PARTICULARLY WITH REGARD TO THE INTERACTION OF LIGHTING FIXTURES, AIR HANDLING OPENINGS, ACCESS DOORS, SPRINKLER HEADS, ETC. CEILING CONSTRUCTION INSTALLATION SHALL BE MADE IN ACCORD WITH REFLECTED CEILING PLANS AND/OR INSTRUCTIONS BY THE ARCHITECT'S REPRESENTATIVES ON THE SITE. MOVING OF ITEMS FROM LOCATIONS SHOWN, REROUTING, OR CHANGES TO ACCOMPLISH ANY WORK AS SHOWN ON PLANS OR SPECIFICATIONS IN ORDER TO ACCOMPLISH THIS COORDINATION SHALL NOT BE CAUSE FOR CLAIM FOR ADDITIONAL COMPENSATION FOR THE WORK. PARTICULAR CARE SHALL BE TAKEN TO LOCATE BOXES SO THEY ARE NOT BACK-TO-BACK IN WALLS AND TO LOCATE OUTLETS OFF COLUMNS (UNLESS VITAL THEY BE THERE) OR OTHER PLACES WHERE THEY CONFLICT WITH STRUCTURAL STEEL OR REINFORCING BARS.
- C. CONTRACTOR SHALL MAINTAIN AT THE SITE A COMPLETE SET OF ALL SHOP DRAWINGS, FIXTURE AND EQUIPMENT CUTS, MANUFACTURER'S WIRING DIAGRAMS AND INSTALLATION DATA. PERSONNEL SHALL STUDY THIS DATA BEFORE AND DURING INSTALLATION AND ROUGHING SO AS TO PREPARE FOR THE PROPER FIT AND FUNCTION UPON COMPLETION.
- D. IN GENERAL, MOUNTING HEIGHTS OF OUTLETS, SWITCHES, ETC. ARE NOTED ON THE SYMBOL SCHEDULE. SCHEDULES AND NOTES SPECIFY "STANDARD" MOUNTING HEIGHTS FOR THESE ITEMS. STUDY CAREFULLY ELEVATIONS OF ALL WALLS AND CABINET WORK AS SHOWN ON ARCHITECTURAL DRAWINGS AND FIT OUTLETS TO SPACE AND TO AVOID CONFLICTS. OUTLETS SHALL ALWAYS BE LOCATED ABOVE, AND NOT IN BACKSPLASHES, WHEREVER POSSIBLE. COORDINATE OUTLET LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS. ANY CONFLICT THAT CANNOT BE RESOLVED ON THE JOB SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER PRIOR TO ROUGHING.
- E. CIRCUIT WIRE SIZING FOR 20 AMP CIRCUITS SHALL BE IN ACCORD WITH THE FOLLOWING TABLE:

VOLTS	DISTANCE	HOME RUN	OF CIRCUIT	VOLTS	DISTANCE	HOME RUN	OF CIRCUIT
120	0' - 50' 50' - 100' 100' - 150'	#12 #10 # 8	#12 #12 #10	277V	0' - 130' 130' - 220' 220' - 330'	#12 #10 # 8	#12 #12 #10

- F. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING BUT NOT LIMITED TO BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, AND TRANSFORMER LUGS, SHALL BE RATED FOR USE WITH 75°C CONDUCTORS SIZED IN ACCORDANCE WITH NEC TABLE 310.15(B)(16).
- G. ALL RACEWAYS SHALL BE EMT UNLESS SPECIFICALLY NOTED OR APPROVED OTHERWISE. ALL RACEWAYS MOUNTED ON THE ROOF OR EXTERIOR SHALL BE RIGID METALLIC WITH LIQUID-TIGHT METALLIC FLEX CONDUIT (36" MAX) WHIPS FOR MOTORIZED EQUIPMENT. ALL CIRCUITS SHALL BE IN RACEWAYS. CONCEAL ALL CABLE AND RACEWAYS IN FINISHED AREAS OF BUILDING. PROVIDE COMPRESSION GLAND TYPE FITTINGS MADE OF MALLEABLE, GALVANIZED OR SHERARDIZED STEEL. POT-METAL OR CAST-TYPE FITTINGS SHALL NOT BE PERMITTED ON THIS PROJECT. SET SCREW OR INDENTOR TYPE CONNECTOR OR COUPLING SHALL NOT BE PERMITTED. COLOR CODE CONDUIT.
- H. RACEWAYS FOR UNDERGROUND INSTALLATIONS SHALL BE SCH 40 PVC WITH GLUED COUPLINGS. USE WATER TIGHT COUPLINGS FOR CONNECTIONS TO INGROUND JUNCTION BOXES.
- I. PROVIDE EXPANSION COUPLINGS FOR ALL CONDUITS CROSSING BUILDING EXPANSION JOINTS. REFER TO ARCHITECTURAL PLANS FOR EXPANSION JOINT LOCATIONS.
- J. CONDUCTOR INSULATION SHALL BE THHN/THWN. MINIMUM SIZE OF CONDUCTORS SHALL BE #12 AWG.
- K. PROVIDE A SEPARATE, GREEN WIRE GROUNDING CONDUCTOR, SIZED PER N.E.C., IN ALL LIGHTING & POWER CIRCUITS. PROVIDE A SEPARATE WHITE NEUTRAL CONDUCTOR FOR ALL 120 VOLT BRANCH CIRCUITS (NO SHARED NEUTRALS).
- L. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT SHALL BE LABEL LISTED BY A NORTH CAROLINA APPROVED THIRD PARTY TESTING AGENCY.
- M. CONDUCTORS SHALL BE COPPER WITH 75°C (THHN/THWN) MINIMUM INSULATION RUN IN METALLIC CONDUIT.
- N. ALL CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

208V/120V, 1-PHASE, 3-WIRE	208V/120V,	3-PHASE, 4-WIRE	480V/277V, 3-PHASE, 4-WIR				
PHASE A BLACK PHASE B RED PHASE C ORANGE (HIGH LEG) NEUTRAL WHITE GROUND GREEN	PHASE A PHASE B PHASE C NEUTRAL GROUND	BLACK RED BLUE WHITE GREEN	PHASE A PHASE B PHASE C NEUTRAL GROUND	BROWN ORANGE YELLOW LIGHT GRAY GREEN			

#### DEVICE PLATES

1. COVER PLATES FOR FLUSH MOUNTED WIRING DEVICES AND FOR TELEPHONE OUTLETS SHALL BE TYPE "302" STAINLESS STEEL OR NYLON TYPE, STANDARD SIZE, SINGLE OR GANGED AS SHOWN ON THE DRAWINGS. COVER PLATE MOUNTING SCREWS SHALL BE SLOTTED HEAD OVAL SCREWS AND SHALL MATCH THE FINISH AND MATERIAL OF THE PLATE, AND SHALL BE FURNISHED WITH THE PLATE BY THE PLATE MANUFACTURER. QUANTITY OF 2% SPARE COVER PLATES OF EACH TYPE SHALL BE PROVIDED TO THE OWNER.

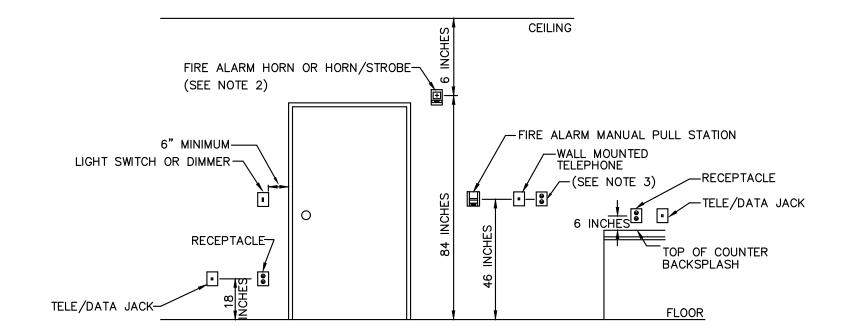
2. SWITCH AND RECEPTACLE COVER PLATES ON EXPOSED WORK SHALL BE GALVANIZED CAST FERROUS METAL, STANDARD SIZE, AND SHALL BE SINGLE OR GANGED AS INDICATED

3. EXTERIOR MOUNTED SWITCH AND RECEPTACLE PLATES, AND THOSE NOTED TO BE WEATHERPROOF, SHALL BE WEATHERPROOF PVC COVER PLATES, STANDARD SIZE, SINGLE OR GANGED AS INDICATED ON THE DRAWINGS, AND SHALL BE "APPROVED" THIRD PARTY LISTED AS "RAIN-TIGHT WHILE IN USE."

#### P. ELECTRICAL IDENTIFICATION

1. FURNISH AND INSTALL ENGRAVED LAMINATED PHENOLIC NAMEPLATES FOR ALL SAFETY SWITCHES, PANELBOARDS, TRANSFORMERS, SWITCHBOARDS, MOTOR CONTROL CENTERS AND OTHER ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT FOR IDENTIFICATION. NAMEPLATES SHALL BE SECURELY ATTACHED TO EQUIPMENT WITH SELF-TAPPING STAINLESS STEEL SCREWS; IF THE SCREW SHARP END IS PROTECTED; OTHERWISE RIVETS SHALL BE USED. LETTERS SHALL BE APPROXIMATELY 1/2 INCH HIGH MINIMUM. EMBOSSED, SELF-ADHESIVE PLASTIC TAPE IS NOT ACCEPTABLE FOR MARKING EQUIPMENT. NAMEPLATE MATERIAL COLORS SHALL BE:

- .... BLUE SURFACE WITH WHITE CORE FOR 120/208 VOLT EQUIPMENT
- .... BLACK SURFACE WITH WHITE CORE FOR 277/480 VOLT EQUIPMENT . BRIGHT RED SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO FIRE ALARM SYSTEM
- .... DARK RED (BURGUNDY) SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO SECURITY. .... GREEN SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO "EMERGENCY" SYSTEMS.
- ORANGE SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO TELEPHONE SYSTEM.
- BROWN SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO DATA SYSTEMS.
- WHITE SURFACE WITH BLACK CORE FOR ALL EQUIPMENT RELATED TO PAGING SYSTMES. .... PURPLE SURFACE WITH WHITE CORE FOR ALL EQUIPMENT RELATED TO TV SYSTEMS.





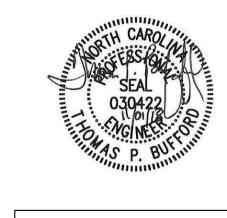
- 1. SEE ELECTRICAL FLOOR PLANS AND ARCHITECTURAL WALL ELEVATIONS FOR "NON-TYPICAL" DEVICE MOUNTING HEIGHTS.
- 2. MOUNT OUTLET BOX AT 84" A.F.F. OR 6" DOWN FROM CEILING, WHICHEVER IS LOWER.
- 3. TYPICAL RECEPTACLE NOT AT COUNTER LOCATION.

	ELECTRICAL SY	MBOL LEGEN	D
	SOLID LINES INDICATE CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILINGS, EXPOSED IN UNFINISHED AREAS. DASHED LINES INDICATE CONDUIT RUN BELOW GRADE OR BELOW FINISHED FLOOR. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.		
	HOMERUN TO PANELBOARD. QUANTITY OF ARROWS INDICATES NUMBER OF CIRCUITS.	0	CEILING MOUNTED JUNCTION BOX. SEE E1.1 SHEET FOR DETAILS.
• о • • • • • • • • • • • • • • • • • •	SUSPENDED LIGHTING FIXTURE CONNECTED TO NORMAL BRANCH CIRCUIT. SEE LIGHTING FIXTURE SCHEDULE FOR EXACT REQUIREMENTS.	<del>=</del>	125 VOLT, 3 WRE DUPLEX RECEPTACLES IN FLUSH (FINISHED SPACES) OR SURFACE (UNFINISHED SPACES) 2-GANG OUTLET BOX W/PLASTER RING. MOUNT 18" OR 46" ABOVE FINISHED FLOOR, OR 6" ABOVE DESK, COUNTERTOP, OR BACKSPLASH, UNLESS OTHERWISE INDICATED.
	SUSPENDED LIGHTING FIXTURE WITH EMERGENCY EGRESS BALLAST, DRIVER OR BATTERY BACKUP. LETTER INDICATES TYPE. SEE LIGHTING FIXTURE SCHEDULE FOR EXACT REQUIREMENTS.	GF → GF	125 VOLT, 3 WIRE GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE. MOUNTING AS INDICATED. HUBBELL GF SERIES OR EQUIVALENT.
	208Y/120 OR 120/240 VOLT PANELBOARD, FLUSH AND SURFACE MOUNTED RESPECTIVELY. SEE PANEL SCHEDULE FOR DESIGN INFORMATION. DESIGNATION AS INDICATED.	→ WP → WP	125 VOLT, 15 AMP, 3 WIRE TAMPER-RRESISTTANT, WEATHER-TRESISTANT, GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE WITH STAINLESS STEEL WHILE-IN-USE WEATHERPROOF COVER. MOUNTING AS INDICATED.
본 8	EMERGENCY BATTERY PACK UNIT WITH NUMBER OF LAMPS AS INDICATED. LETTER (WHERE SHOWN) INDICATES TYPE. SEE LIGHTING FIXTURE SCHEDULE FOR EXACT REQUIREMENTS. CONNECT UNSWITCHED TO INDICATED BRANCH CIRCUIT.	•	ELECTRIC PUSH BUTTON IN FLUSH OUTLET BOX WHEN SHOWN IN FINISHED WALLS. MOUNT 46-INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED OR REQUIRED BY SITE CONDITIONS. PROVIDED BY DOOR OPERATED VENDOR.
S	SINGLE-POLE SWITCH IN FLUSH (FINISHED SPACES) OR SURFACE (UNFINISHED SPACES) OUTLET BOX. MOUNT 46" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED OR REQUIRED BY SITE CONDITIONS. HUBBELL 1221 SERIES OR EQUIVALENT.	©S	OCCUPANCY MOTION SENSOR SWITCH TO CONTROL LIGHT FIXTURES. 120VAC CEILING MOUNTED. SEE SPECIFICATIONS.
23	THREE-WAY SWITCH IN FLUSH (FINISHED SPACES) OR SURFACE (UNFINISHED SPACES) OUTLET BOX. MOUNT 46" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED OR REQUIRED BY SITE CONDITIONS. HUBBELL 1223 SERIES OR EQUIVALENT.		
S4	FOUR-WAY SWITCH IN FLUSH (FINISHED SPACES) OR SURFACE (UNFINISHED SPACES) OUTLET BOX. MOUNT 46" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED OR REQUIRED BY SITE CONDITIONS. HUBBELL 1221 SERIES OR EQUIVALENT.		
Sm	MOTOR RATED CONTACT SWITCH WITH POLES AS REQUIRED, IN FLUSH (FINISHED SPACES) OR SURFACE (UNFINISHED SPACES) OUTLET BOX. MOUNT 46" ABOVE FINISHED FLOOR OR WITHIN SIGHT OF MOTOR BEING SERVED, UNLESS OTHERWISE INDICATED.		

#### NORTH CAROLINA STATE BUILDING CODE 2012 **ENERGY CODE** LIGHTING COMPLIANCE METHOD OF COMPLIANCE: BUILDING AREA STANDARD PANEL SCHEDULES: E0.3 STANDARD LOAD SUMMARIES: E0.3 SEE SHEET E0.2 NUMBER OF LAMPS: SEE SHEET E0.2 SEE SHEET E0.2 BALLAST TYPE USED: NUMBER OF BALLASTS: SEE SHEET E0.2 TOTAL WATTAGE: SEE SHEET E0.2 TOTAL INTERIOR WATTAGE SPECIFIED vs. ALLOWED: 1080 W vs. 2006 W TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED: 168 W vs. 750 W

### ARREVIATIONS

	ADDREVIA	ION	<u> </u>
Α	AMPERES	G	GROUNDING CONDUCTOR
AFF	ABOVE FINISHED FLOOR	GF	GROUND FAULT CIRCUIT INTERRUPTER
AFG	ABOVE FINISHED GRADE	HP	HORSE POWER
ATS	AUTOMATIC TRANSFER SWITCH	LC	LIGHTING CONTACTOR
BAS	BUILDING AUTOMATION SYSTEM PANEL	N	NEUTRAL CONDUCTOR
С	CONDUIT	NL	NIGHT LIGHT
CATV	CABLE TELEVISION	Р	POLE
Cd	CANDELA RATING	PIV	POST INDICATOR VALVE
СВ	CIRCUIT BREAKER	REC	RECEPTACLE
СМ	CEILING MOUNTED	SPD	SURGE PROTECTION DEVICE
EF	EXHAUST FAN	UC	UNDER COUNTER
ER	ELEVATOR RECALL	UNO	UNLESS NOTED OTHERWISE
EWC	ELECTRIC WATER COOLER	V	VOLTS
	CONNECTION WITH GROUND FAULT	VA	VOLT-AMPS
	PROTECTION	W	WATTS, WIRES
FACP	FIRE ALARM CONTROL PANEL	WP	WEATHERPROOF
FPN	FUSED PER NAMEPLATE RATING	WG	WIRE GUARD





<u>6</u>

architectural
90 Church Street, Asheville, NC 28801

studio

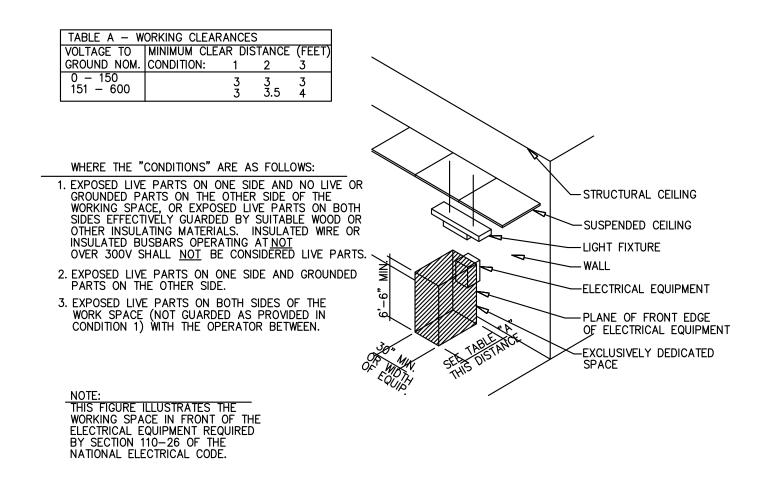
architectural designable of Signary 28801 Phone: 828

ELECTRICAL NOTES:

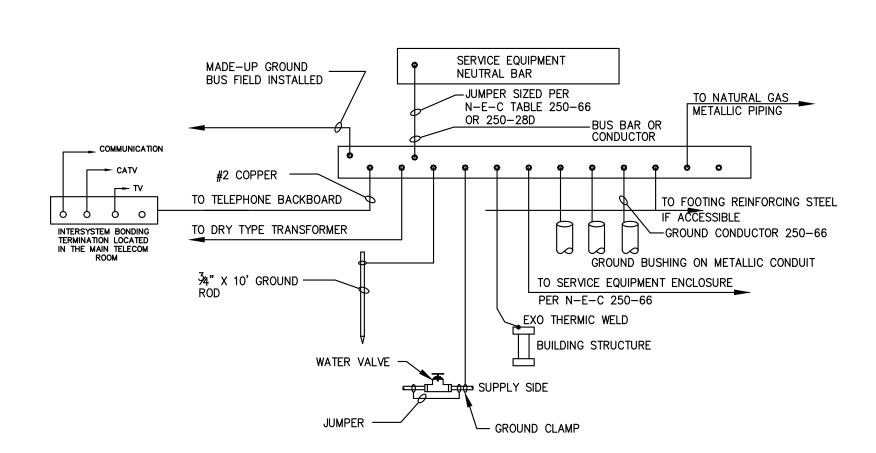
THE EQUIPMENT CONTRACTOR.

- 1) EQUIPMENT OF TRADES OTHER THAN ELECTRICAL. (2) CONDUIT & WIRING BY HVAC, PLUMBING CONTRACTOR OR OTHER TRADES.
- (3) IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY
- 4 A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER LOCATE ADJACENT TO EQUIPMENT.
- 5) FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
- (6) JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX, LOAD SIDE WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
- 7 PROJECTS UTILIZING AN MCC, THE STARTER, CB OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- (8) IN ALL CASES, THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START UP AND TEST EQUIPMENT.
- (9) IF THE ROOF TOP EQUIPMENT IS NOT PROVIDED WITH BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.



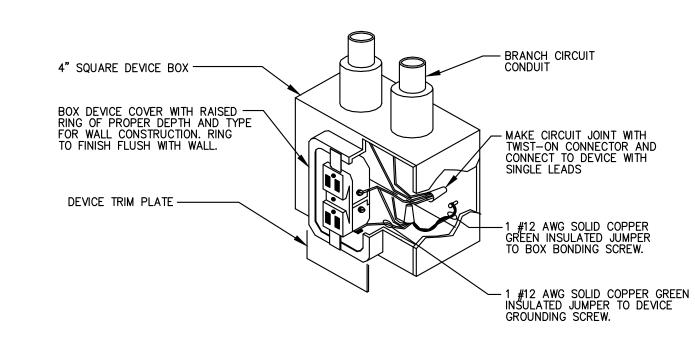






SERVICE EQUIPMENT GROUNDING E0.2 SCALE : NOT TO SCALE

> GROUND BUSBARS - 2"W X 12"L X 1/4"D (MIN.) CU. BUSBAR ON STANDOFF INSULATORS (TYP.)



RECEPTACLE GROUNDING DETAIL SCALE : NOT TO SCALE

							LUMIN	NAIRE	SCHEDU	JLE	
TYPE	MANUFACTURERS	CATALOG INFORMATION	NO L	AMP DATA TYPE	BA NO	LLAST DATA*   TYPE	INPUT WATTS	VOLTAGE	MOUNTING	FIXTURE DESCRIPTION	REMARKS
Db	SPI STILE WILLIAMS XELEUM OR APPROVED	LECR-C SERIES 75 SERIES XASW02 SERIES EQUIVALENT	x	LED/4000°K	-	-	45		SUSPENDED	4' LINEAR STRIP, 4" WIDE, DIFFUSING LENS, ±5,000	SUSPENDED FROM METAL STRUCTURE IN CEILING, MOUNT HIGH ENOUGH AFF TO CLEAR GARAGE DOOR WHEN OPENED.
Eb	SURE-LITES CHLORIDE DUAL LITE EMERGI-LITE	LEM4 SERIES EQUAL EQUAL EQUAL	2	LED	1	SEE REMARKS	3.4	120	WALL	4.8V EMERG. LIGHT, DUAL VOLTAGE, 4 REMOTE HEAD, HIGH IMPACT THERMOPLASTIC RESIN HOUSING, WHITE FINISH, SEALED NICKEL METAL HYDRIDE BATTERY, WITH SELF DIAGNOSTICS OPTION.	MEETS OR EXCEEDS REQUIREMENTS OF UL 924, NFPA 70, NFPA 101 FOR 90 MIN. OPERATION.
Ed	LUMARK HUBBELL PHILLIPS STONCO LITHONIA	XTOR LNC9L WTN OLWX1	2	LED (3500°K)	1	DRIVER	42	120	WALL	REFRACTIVE LENS LUMINAIRE, 2 LEDS, FULL—CUTOFF, DIE—CAST AL. HOUSING, CARBON BRONZE FINISH, EMERG. COLD TEMP. POWER PACK., W/PE CELL.	MOUNT AT 9FT AFG MAX.

UNIV. - UNIVERSAL VOLTAGE 120/277V

LUMINAIRE NOTES (APPLY TO ALL LUMINAIRES)

PRIOR TO ORDERING LUMINAIRES.

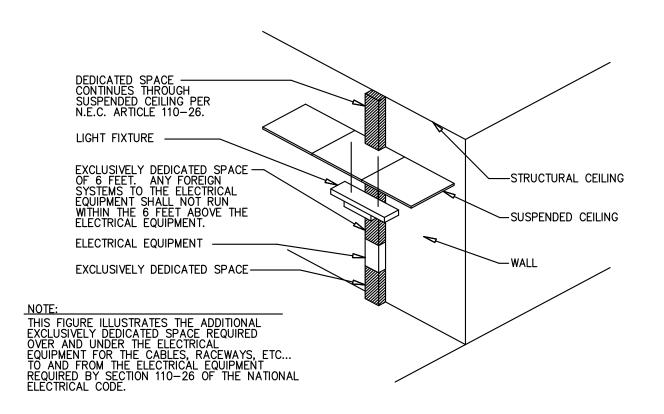
1. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION AND PLACEMENT OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS PRIOR TO ROUGH—IN OR RELOCATE THEM AT NO CHARGE 2. CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT LUMINAIRES IN TYPE OF CEILING OR WALL AS SPECIFIED IN ARCHITECTURAL FINISH SCHEDULES REGARDLESS OF CATALOG NUMBER GIVEN. CONTRACTOR SHALL VERIFY TYPE OF CEILING OR WALL BY REVIEWING ARCH. FINISH SCHEDULES

3. LUMINAIRES SHALL BE SUPPORTED FROM THE STRUCTURE AS STATED IN THE PROJECT SPECIFICATIONS, AND/OR SHOWN ON DETAIL. LUMINAIRE SUPPORTS SHALL COMPLY WITH PROJECT SEISMIC REQUIREMENTS. REQUIRED SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

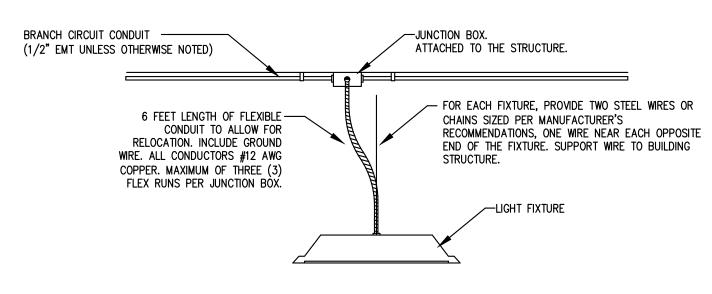
4. LUMINAIRES AS SPECIFIED HAVE BEEN SELECTED TO PROVIDE REQUIRED LEVELS OF ILLUMINATION, PERFORMANCE AND CONSTRUCTION FEATURES. ANY DEVIATIONS FROM SPECIFIED LUMINAIRES AND LIGHTING SPECIFICATIONS SHALL REQUIRE THE SUBMITTING AGENT AND CONTRACTOR RESPONSIBLE, FOR PROVING SUCH DEVIATION WILL PROVIDE EQUIVALENT PERFORMANCE AND CONSTRUCTION TO THE SPECIFIED LUMINAIRE AND SPECIFIED LIGHTING REQUIREMENTS.

5. MULTIPLE LUMINAIRES SWITCHED TOGETHER MAY BE FACTORY TANDEM WIRED WITH 2, 3, & 4 LAMP BALLAST, NO SINGLE LAMP BALLAST ALLOWED UNLESS SPECIFICALLY SCHEDULED. INDIVIDUAL FLUORESCENT LUMINAIRES SHALL BE EQUIPPED WITH ONE BALLAST WITH ABILITY TO SPLIT SWITCH LAMPING IN EACH LUMINAIRE. SWITCH ONE BALLAST IN LUMINAIRE TO PROVIDE HALF (ONE-THIRD, TWO-THIRD) OR FULL ILLUMINATION OF AREAS INDICATED. WIRE SUCH THAT ONE SWITCH CONTROLS INSIDE LAMPS OF LUMINAIRE AND OTHER SWITCH CONTROLS OUTSIDE LAMPS. TYPICAL AS NOTED OR AS REQUIRED BY NORTH CAROLINA STATE BUILDING ENERGY CODE, CHAPTER 8. CONTRACTOR SHALL BE RESPONSIBLE FOR LUMINAIRE COUNTS.

- 6. CONTRACTOR SHALL VERIFY VOLTAGE AVAILABLE IN EACH AREA, AND FURNISH LUMINAIRES AT VOLTAGE
- 7. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR EXIT AND EGRESS LUMINAIRES. 8. ALL RECESSED LUMINAIRES INSTALLED IN CEILINGS, INDICATED BY ARCH. AS HAVING INSULATION INSTALLED OVER CEILING AND FIXTURES, SHALL BE U.L. RATED FOR DIRECT CONTACT WITH INSULATION. VERIFY WITH ARCHITECTURAL PLANS.
- 9. ALL LUMINAIRES RECESSED IN FIRE RATED CEILINGS, SHALL BE INSTALLED WITH AN APPROVED TENT ENCLOSURE BY G/C, OR BE U.L. RATED FOR USE IN FIRE RATED CEILINGS. VERIFY WITH ARCHITECTURAL PLANS, AND COORDINATE WITH G/C BEFORE INSTALLATION OF LUMINAIRES.
- 10. LUMINAIRES SHALL BE EQUIPPED WITH PROGRAMMED START BALLASTS, WHERE LUMINAIRES ARE CONTROLLED BY OCCUPANCY SENSORS AS INDICATED ON PLANS. 11. LUMINAIRES WITH FLUORESCENT BALLASTS OR LED DRIVERS WHERE SHOWN MUST BE COMPATIBLE WITH
- 12. AREAS PROVIDED WITH FLUORESCENT LUMINAIRES AND DUAL LEVEL SWITCH CONTROLS WILL REQUIRE A COMBINATION OF TWO LAMP BALLAST AND ONE BALLAST. SAME AREAS PROVIDED WITH LED LUMINAIRES WILL REQUIRE 50% STEP DIMMING DRIVERS.



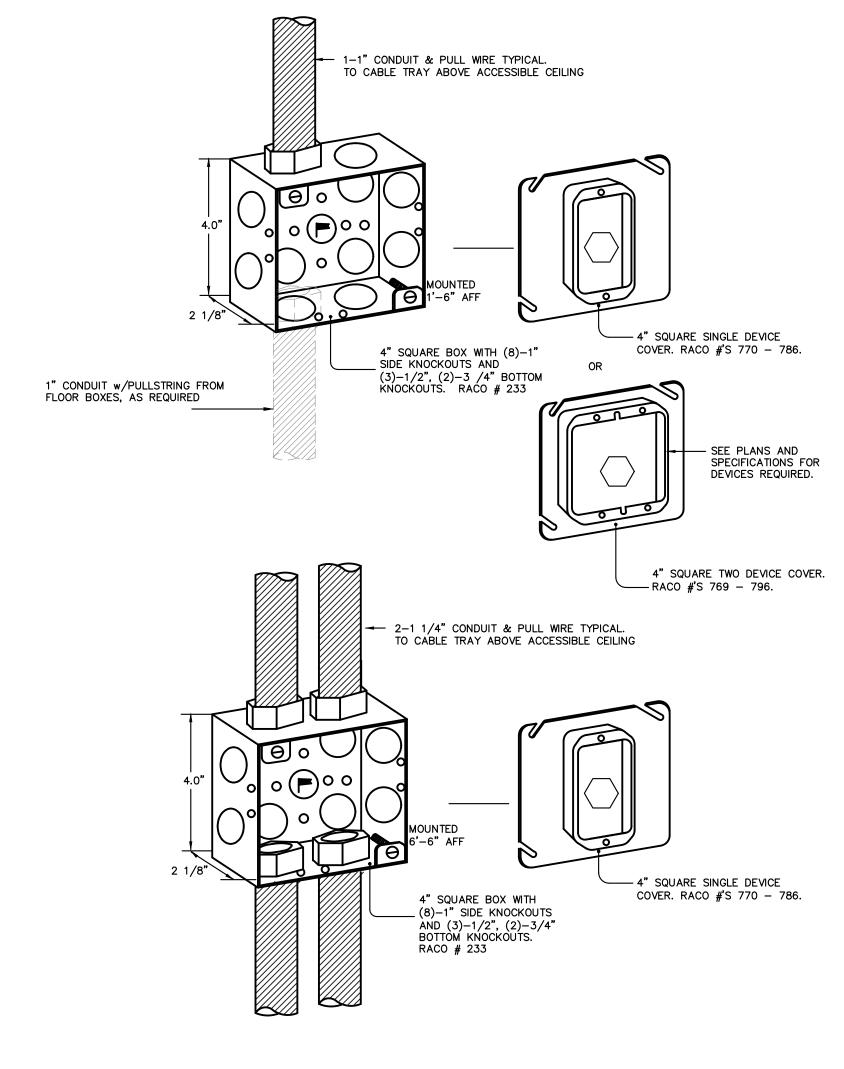
5 ELECTRICAL EQUIPMENT DEDICATED SPACE E0.2 SCALE : NOT TO SCALE

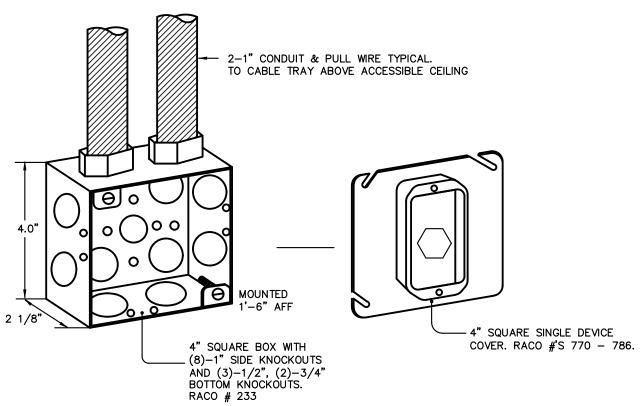


TYPICAL LIGHTING FIXTURE MOUNTING DETAIL E0.2 SCALE : NOT TO SCALE









OTHER ACCEPTABLE MANUFACTURERS ARE APPLETON, T&B, AND MIDLAND ROSS/STEEL CITY

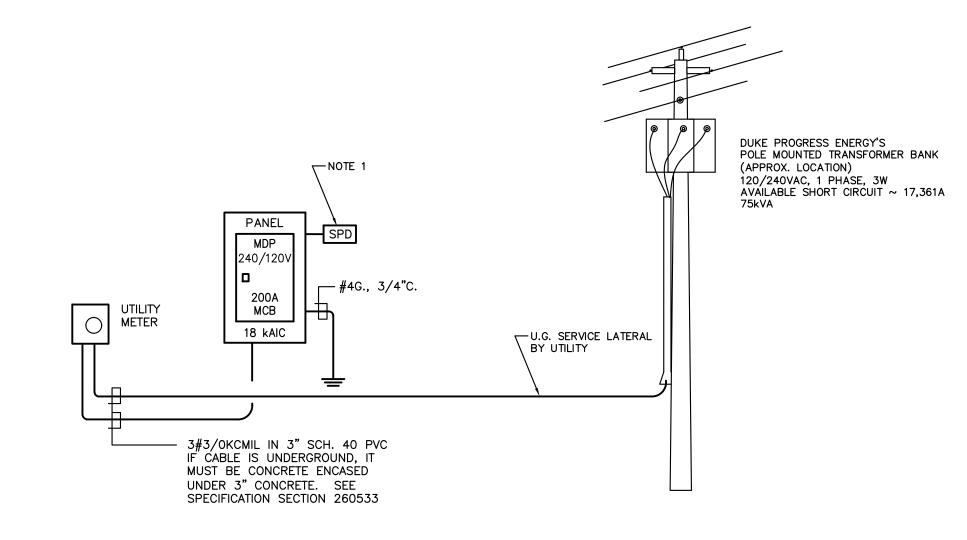
1 TELE/DATA OUTLET BOX DETAIL
E0.3 SCALE: NONE

NOTES:

1. CONTRACTOR PROVIDE WALL BOXES AND CONDUIT ONLY.
CONDUIT TO EXTEND AND TURN OUT ABOVE CEILING OR AN
ACCESSIBLE SPACE ABOVE ADJACENT CEILING. 3/4"C. MIN..
PHONE/DATA CABLING BY OWNER.

2. BOX AND RING NUMBERS SHOWN FOR STUD WALL CONSTRUCTION,

3. SUBSTITUTE MASONRY BOX EQUIVALENT WHERE LOCATED IN CMU OR CONCRETE WALLS.

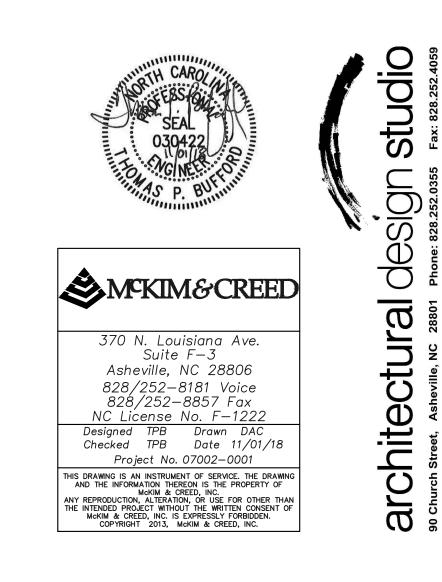


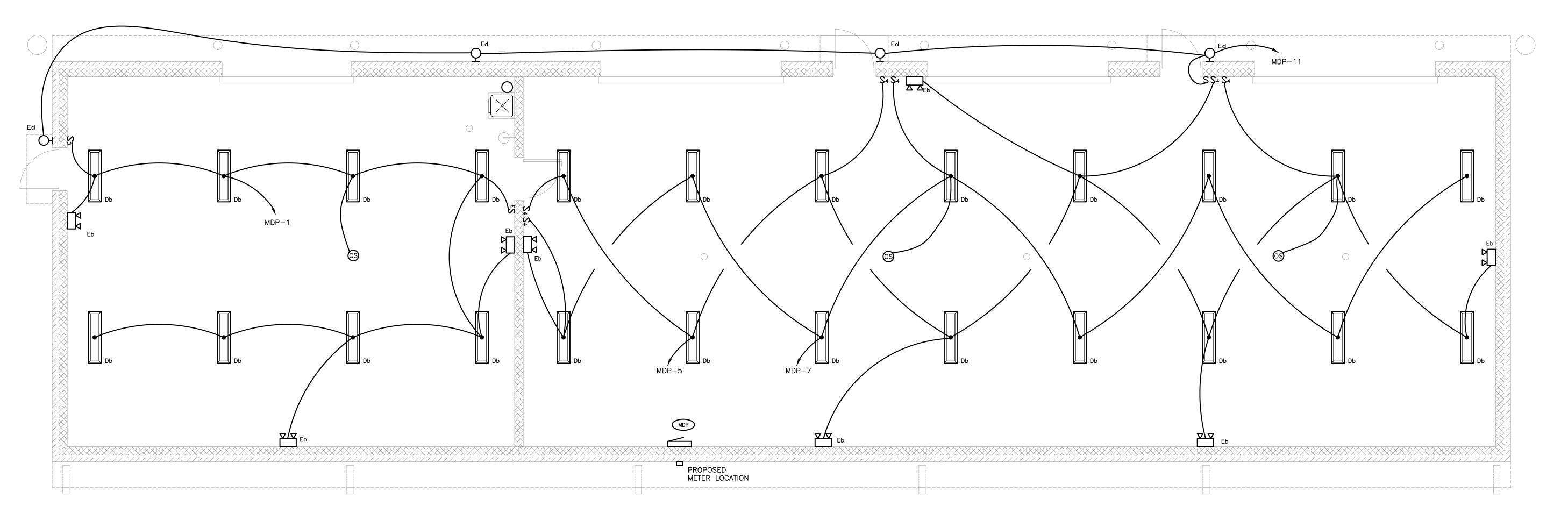
2 ELECTRICAL RISER DIAGRAM
SCALE: NONE

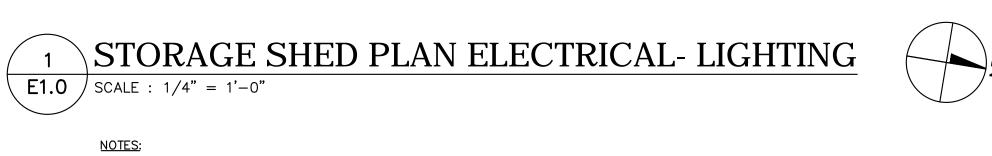
NOTES:

1. SURGE SUPPRESSOR, 100KA PER MODE/200KA PER PHASE, 10
YEAR WARRANTY, #8 WIRE AS SHORT AS POSSIBLE VIA 50A/3P
CIRCUIT BREAKER

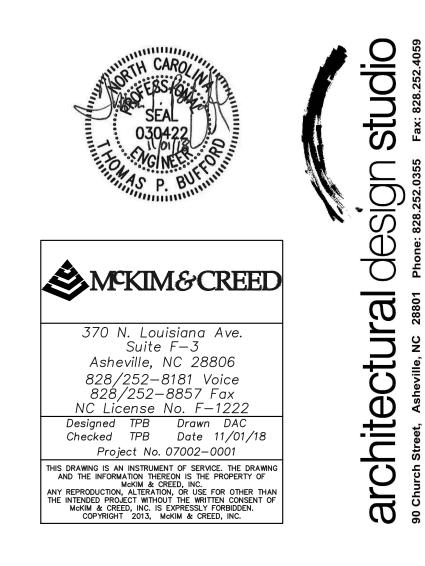
SERVED FROM: UTILITY ENCLOSURE RATING: NEMA 1 MOUNTING: SURFACE			MAII	N BRE	ATING: AKER: TIONS:	200	A					VOLT	AGE ( CATIC	L-N):	240 120 MAIN	TENAN		HASE: WIRE: DRAGE	3		,000 MINIMUM RMS SYMMETRICAL AIC RATIN	ING		
IR.	LOAD			LOAD	(KVA)			WIRE	G	CND	BRKR	1 [	BRKR	WIRE	G	CND			LOAD	(KVA)			LOAD	CIR
0.	DESCRIPTION	LTG	H/C	мот	KIT	REC	MISC	SIZE	SIZE	IN.	RTG	Ш	RTG	SIZE	SIZE	IN.	LTG	H/C	мот	KIT	REC	MISC	DESCRIPTION	NO.
L	LTG STORAGE RM 102	0.32						12	12	1/2	20	Α	20	12	12	1/2					0.36		RECEPTACLES RM 102	2
3	EF-2			0.10				12	12	1/2	20	В	20	12	12	1/2			1.18				GARAGE DOOR	4
5	LTG STORAGE RM 101	0.36						12	12	1/2	20	Α	20	12	12	1/2					0.72		RECEPTACLES RM 102	6
7	LTG STORAGE RM 101	0.31						12	12	1/2	20	В	20	12	12	1/2					0.72		RECEPTACLES RM 102	8
9	EF-1			0.07				12	12	1/2	20	Α	20	12	12	1/2		0.70					UH-1	10
1	EXTERIOR LTG	0.30						12	12	1/2	20	В	20	12	12	1/2					0.54		RECEPTACLES RM 101	12
.3	RECEPTACLES RM 101					0.72		12	12	1/2	20	A	20	12	12	1/2					0.72		RECEPTACLES RM 101	14
.5	WH-1 CONTROLS						0.25	12	12	1/2	20	В	20	12	12	1/2			1.18				GARAGE DOOR	16
L7	RECEPTACLES RM 101	1				0.54		12	12	1/2	20	A	20	12	12	1/2			1.18				GARAGE DOOR	18
.9	CEILING CORD REEL					0.18		12	12	1/2	20	В	20	12	12	1/2			1.18				GARAGE DOOR	20
1	CEILING CORD REEL					0.18		12	12	1/2	20	A	20										SPARE	22
3	CEILING CORD REEL					0.18		12	12	1/2	20	В	20										SPARE	24
5										,_		Ā	20										SPARE	26
7												В												28
9												Ā												30
1												В												32
3												A												34
5												В												36
<u>7</u>												A												38
9						0.10		8				В												40
1	SPD					0.10		8	10	3/4	50/2	H												42
1. PROVIDE WITH COPPER BUSSES.  H N					LOAD LIGHT HEATI MOTO KITCH	ING/C NG/CO RS EN	ONTI	ทบิดบ	CONNECT DUS 1.29 0.70 4.89 0.00			TED.	TED DEMAND 1.61 0.70 5.18 0.00		LOAD BALANCE PHASE A 98.01% PHASE B 101.99%				— 01% .99%		•			
			RECEP MISCE						5.06 0.25			.06 .25	. l	.ARGES	TOTAI NU TE			.MPS x ASE %:						
	LARGEST MOTOR (KVA)	: 1.18	-				TOTAL	-				1	2.19		12	.80	LARG	EST UI	NBALA	NCE PI	HASE A	AMPS:	54.42	7



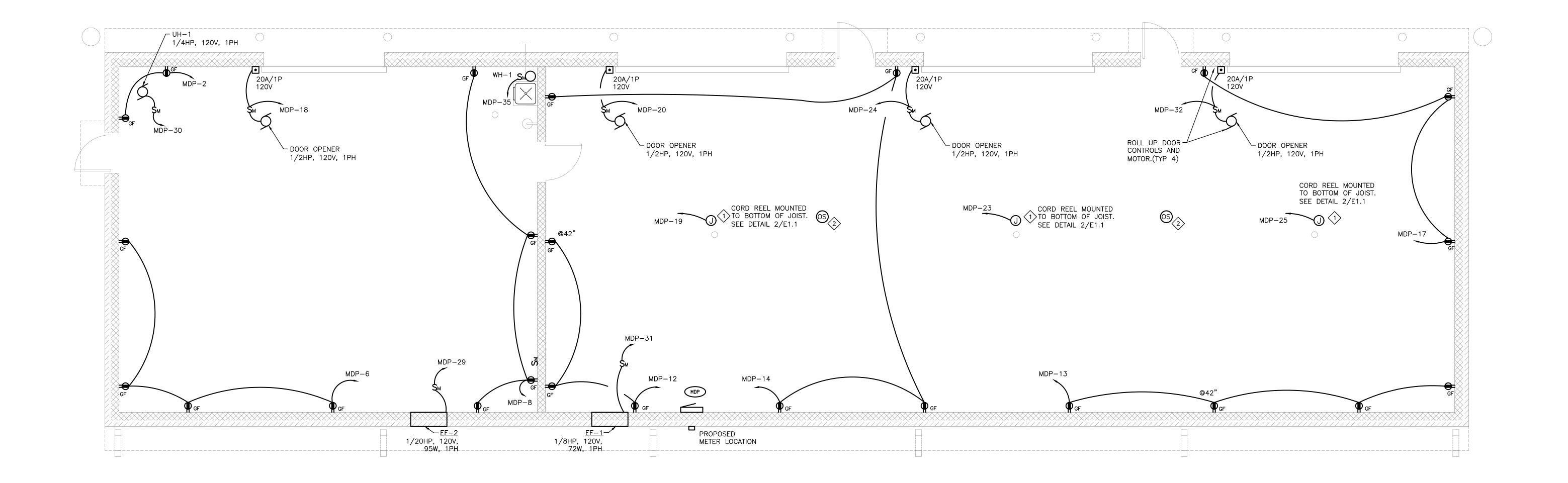




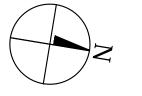
1. COORDINATE HEIGHT OF LIGHT FIXTURES WITH OVERHEAD DOOR PATH.



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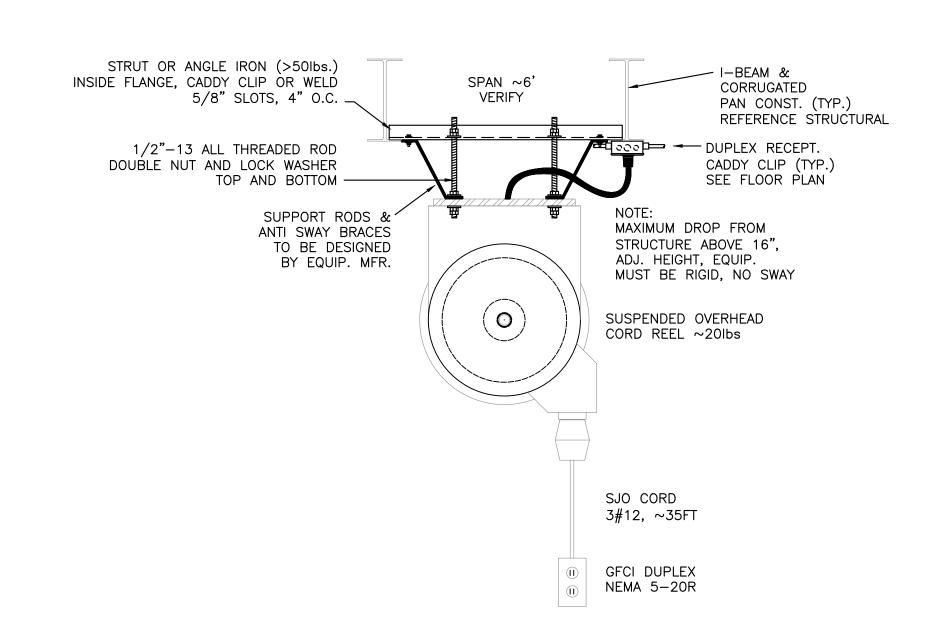


# STORAGE SHED PLAN ELECTRICAL- POWER **E1.1** SCALE : 1/4" = 1'-0"



NEW WORK NOTES:

- (1) E.C. TO PROVIDE A INDUSTRIAL GRADE RETRACTABLE YELLOW CORD REEL, HEAVY DUTY STEEL, NEMA 4, 120V/20A, 50FT 12/3 TYPE SJ CORD, YELLOW OUTLET BOX W/5-20R GFCI DUPLEX/BLANK, 6FT FEEDER CORD W/PLUG 5-20P, 345° PIVOT BASE. KH INDUSTRIES RTB SERIES CAT. NO. RTBB3L-WGB520-J12K W/RTBF-PVB PIVOT BASE. EQUIVALENT RETRACTABLE REELS BY REELCRAFT AND ERICSON MAY BE CONSIDERED. SEE DETAIL 2/E1.1.
- 2 PROVIDE OCCUPANCY SENSOR AND CONNECT TO EF-1 FOR FAN OPERATION.



POWER REEL MOUNTING DETAIL E1.1 / SCALE : NOT TO SCALE

